# OUR DAY

VOLUME TWENTY-THREE — The World's News and The World's Views — NUMBER THREE

MARCH, 1904

NO PLACE FOR THE BEAST.

*Uncle Sam:* Your ticket is all right, Mister, but you can't bring that goat in here.

## MORMONISM AS A NATIONAL PROBLEM

By HENRY T. DAVIDSON

ONE of the most unusual investigations which has ever been conducted by any branch of the government at Washington has been in progress this month in the Senate Committee on Privileges and Elections. Leaders in the Mormon church have been called upon to explain their attitude towards polygamy and to give facts concerning their church organization, showing in what way Apostle Reed Smoot, the new Senator, was connected with Mormonism and under what oath he was bound. The most startling disclosures were made by President Joseph F. Smith, the head of the church, showing that he was the husband of five living wives and the father of forty-two children, thirteen of whom have been born since the manifesto prohibiting polygamy in 1890. According to his testimony not more than three or four per cent of the Mormons practice polygamy, although six of the twelve apostles were acknowledged to be living with more than one wife, while others might be doing so without his knowledge. President Smith clearly stated that he believed in polygamy, though he denied having taught it. In view of all these disclosures and the importance which the Mormon question has aroused, some of the leading facts in recent Mormon history will be of value to refresh our memories and show the general trend of the movement.

In 1890 the Liberal or Gentile party in Utah gained political ascendency as the result of the rapid growth in numbers of the Gentiles, following the completion of the Union Pacific Railroad, the opening up of western mines and other industries. At that time it was "vaguely computed" that there were in Utah some 50,000 Gentiles and about 110,000 Mormons, with a total Mormon following of at least 250,000. The Mormon population today in Utah and surrounding territory must be at least 300,000.

As far back as 1862 a law had been enacted against polygamy, but in eighteen years there were only two convictions, and for a very good reason—the jurymen were all Mormons. Then came more stringent legislation and finally the drastic Edmunds' laws of 1882 and 1887. Under this code Mormon sympathizers were excluded from juries. James Biddle Halsey in The Era says, that in the year ending in September, 1891, there were no less than 109 convictions, and 12,000 men and women were disfranchised. Mormons had been among the first to grant female suffrage, but strange as it may seem, this

proved a bulwark of polygamy and the Government, after seventeen years' endurance, refused longer to let women vote. These were evil days for the saints. Many prominent polygamists went to the penitentiary rather than forsake their plural wives, fines were imposed, property was confiscated. And still the refractory law-breakers were not converted! The Government, to show that mercy and truth were met together, built a large "home" for discarded plural wives. The Mormons said that no Mormon woman should ever enter it—and none ever did. The building stands today as a meaningless monument without purpose or justification. True, the governor did finally establish his offices in it, and a few Gentiles were bold enough to occupy apartments, but nothing seems to lift its pall of bleakness and desolation. One can almost imagine it to be haunted and the sad possessor of a ghost-walk—if ever house were haunted for not having had inhabitants!

Gradually, the disabilities entailed by polygamous law-breaking, but more especially the inherent weakness of such a social system, resulted in reaction. In September, 1890, the head of the church announced a convenient revelation enjoining his people against contracting any marriage forbidden by the law of the land. The desire for statehood in Utah, a privilege withheld for twenty years, made this new revelation doubly acceptable. The "manifesto" issued by the Mormons, solemnly binding themselves to obey the civil law was accepted by the Government in good faith. In September of 1894, President Cleveland issued a proclamation stating that he believed the Mormons to now be living in accordance with the law and in 1896 Utah was admitted into the Union, under the condition that the new Constitution should prohibit polygamy.

Then Mormonism took on new life, and hundreds of missionaries went proselyting throughout this and foreign countries. The power of these missionaries in making converts lies largely in the promise of transporting recruits to the Land of Promise, where they are led to expect little short of a Paradise on Earth. Indeed, most of the immigrants are better off in a material way than they ever were before, though no spot on earth perhaps has seen sadder disillusionment and keener disappointment than the Salt Lake Valley. There is no doubt, however, that tangible and immediate rewards offer a great incentive, and curiosity adds additional weight to many minds. With it all there is the power that comes of centralization. Brigham Young anticipated the spirit of the age when he built the Tabernacle—according to a plan revealed from Heaven, so he said—with a seating capacity of 10,000, and perhaps the most marvelous acoustics in the world.

The Tabernacle supplies the united power and enthusiasm that comes from numbers. The Temple hard by contributes the element of mystery. Within its portals no Gentile is allowed to enter. Its rites are secret, and its marriage ceremony at least interminably long. For a Mormon to get married takes all day—long enough in all conscience without trying it over again.

Co-operation is one of the strong features of Mormon life today. It was noticed in the testimony of President Smith that in addition to the presidency of the church he was also president of the following business concerns: Zion Co-operative and Mercantile Company, State Bank of Utah, Zion Savings Bank, Utah Sugar Company, Consolidated Wagon and Machine Company, Utah Light and Railway Company, Salt Lake and Los Angeles Railway Company, Salt Air Beach Company, Salt Lake Knitting Company and other concerns.

It is not to be understood that President Smith personally owns the controlling interest in these concerns. It simply means that as head of the church his election to the presidency means that these institutions will have the good-will and interest of all Mormons.

Foremost of these great institutions or corporations is Zion's Co-operative Mercantile Institution. This great department store, doing a large wholesale and retail business that extends to every Mormon settlement, was established by Brigham Young in 1868. Every director since its establishment, with the exception of one, whose family belongs to the church, has been a Mormon, and the bulk of its capital, $1,077,000, is in Mormon hands. One-tenth of the salaries of its employees is given to the church. The store has steadily paid large dividends, and its stock is quoted at sixty per cent above par.

The habit of co-operation and of taking counsel enters into social, educational and political life quite as much as into business and religion. In fact it may not be too much to say that the inculcation of this idea has so woven the Mormons together into a cohesive phalanx that any criticism which comes from outside, if resented by one, is resented by all. It is this united stand for one another, and back of it all the enormous wealth which the church has acquired by the constant collection of tithes from every member that makes Mormonism the problem which it is today in our national life.

## HOW ENGLAND IS CARING FOR AGED MINERS

IN an interview in the Christian Commonwealth of London, Mr. John Wilson, a labor member of Parliament and a Nonconformist lay preacher, gave some interesting information as to what is being done in England for aged miners. When he was asked what had been done of late years to ameliorate the lot of this much neglected class he replied:

"That question touches on one of the matters in which I have taken the most active personal interest. I refer to the Homes for old men. The idea was started in 1895, when four or five of us banded ourselves together to push it into practical shape. It is purely a voluntary movement. No compulsion is exercised to secure contributions from the miners. When we started, we simply put the matter before the men, a large number of them gave each a shilling to begin with. Very soon the sum of £3,000 was raised, many of the employers gladly subscribing. The scheme was an exceedingly popular one. Our first step was to buy a colliery village, Haswell Moor, six miles from the city of Durham, together with a little chapel freehold. Here we have 112 old men, each of whom, to be eligible, must be sixty years old, and unable to work. These have their own little reading-room and co-operative stores. We managed to get them up a library of 300 books, and gentlemen in the neighborhood send them weekly and monthly magazines.

"Then I am glad to say, we now possess another colony at Shincliffe, consisting of fifty-one houses, occupied on similar conditions. About a mile from Haswell Moor, we possess ninety-eight houses, which we rent off at £5 each, thus gaining a revenue of about £500, which forms the nucleus of a coal fund. Many of the colliery owners subscribe each year towards coals. Each man in the Homes receives a pension of 5s. per week from the Relief Fund. We lease nine acres of ground from the Ecclesiastical Commissioners in three lots of three acres each, at the three different places, upon which we intend to build cottages. The Commission has certainly acted nobly, for we only pay the nominal rent of £1 per annum for the whole nine acres.

"Each old man has a garden belonging to his house, and all are very happy during their last days, after a life of toil as arduous as any on earth. The best of it is that the Home is the old miner's own house so long as he behaves himself rightly. There is nothing that savors of charity at all in the scheme."

# THE GIFT OF AMERICAN WOMEN TO TURKEY

## HOW CHRISTIAN CULTURE IS BEING DIFFUSED AMONG THE YOUNG WOMEN OF MANY CLASHING NATIONALITIES

By MARY MILLS PATRICK, Ph. D., President American College for Women at Constantinople

Dr. Mary Mills Patrick.

NATIONAL development is the result of the culture of the individual, therefore there is no force so strong or influence so potent in the growth of a nation as the training of the higher powers of thought. This is well illustrated by the work of the colleges of New England in our own earlier history. In those early days there was even less connection between the college curriculum and the practical demands of daily life than there is at present, yet young men went out from the college class rooms of Greek and Latin to become the very pillars in the foundations of the social structure of New England. The thought training and character building involved in higher Christian education will slowly but surely undermine and destroy all forms of bigotry and superstition.

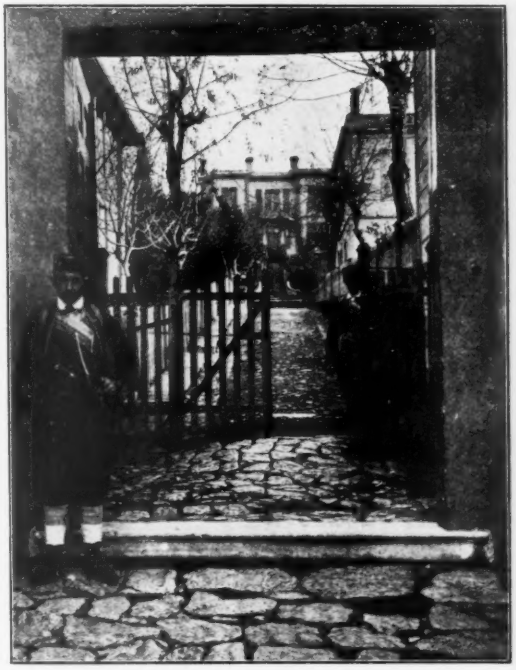
There can be, accordingly, no greater gift made to any nation than that of a good college, a college for men or for women, or for both together.

The American College for Women in Constantinople is a gift not to one nation but to many nations, by the Christian women of America, and at a time when such a gift was most needed, the time of crisis in the history of the East. The countries of the Balkan peninsula are coming anew into modern national relations, and the peoples of Asia Minor are also gradually feeling the influences of modern civilization.

Constantinople is the political key to the East, and a cosmopolitan college established there furnishes a similar key to the intellectual and moral development of all the Eastern nations. The American College for Women in Constantinople stands on the heights of Scutari, on the Asiatic shore of the Bosphorus, about a mile from the hospital where Florence Nightingale nursed the sick soldiers after the Crimean war, and perhaps an equal distance from the site of the old Greek church in Chalcedon, where the Council of Chalcedon was held. The situation is a dominant one, aesthetically, geographically and politically. The views seen from the windows of our College are perhaps the finest in the world, and are symbolic in their broad, bright expanse of the influence which the college seeks to gain over the nations of the East, through the power of cultured Christian womanhood, in the home and in society. To the southwest lie the undulating hills of Asia Minor, crowned by the snow-capped Asiatic Olympus. Then come the shining waters of the Marmora with the Princes' Islands, and on the west the old city of Stamboul, with its domes and minarets, behind which the sun sets in wonderful glory. In the harbor of the Golden Horn float the flags of many nations, and the winding waters of the Bosphorous lead the eye on, past the residence of His Imperial Majesty in Vildiz, past the palace of Dolmabagtche on the shore of the Bosphorus, to Robert College in the distance, even to the hills that hide the Black Sea from view.

To this educational center students come from the east as far as the valley of the Tigris and Euphrates Rivers, from Russia, Roumania and Bulgaria on the north, from Greece and the islands of the Mediterranean, and from Syria and Egypt on the south. Turkey is a land of many nations, between which there is no union, and girls from these different nations come to us from different worlds of language, custom and thought. There are many ways in which our college must adapt itself to these different national demands. One of these is in the matter of language. The academic language of the college is English, but French and German are also well taught, as no education is considered complete in Constantinople without a knowledge of these languages. In addition well manned departments are required in ancient and modern Armenian, ancient and modern Greek, Bulgarian and Slavic, Turkish, including something of Persian and Arabic, and Latin. We also offer one course in Hebrew, which the Israelites consider their classic language. Other languages often spoken in the college, but not taught, are Russian, Hungarian, Koordish, Italian and Spanish.

Where would you find another college composed of so many varied elements, and adapting itself to the needs of so many different nations? Not only, however, do the students differ in custom, nationality and character, but they come also from different classes in society. Equality of nationalities, and equality among the rich and poor are principles utterly opposed to the social practice in Turkey, and the democratic influence of American education abroad is felt not only in the establishment of union between opposing elements from a national and political standpoint, but from a social point of view. Last year we had in college side by side three daughters of Turkish Pashas, the daughter of the Minister of War in Bulgaria, three daughters of a prominent Bulgarian statesman, the daughter of a leading Armenian educator, and the daughter of a wealthy Greek banker, together with poor girls who worked for their tuition, and others who were in such a college through help from our scholarship funds.



Entrance to the College Grounds.

Let me tell you some things that have been accomplished by the American College. Our graduates number 142 of eleven

different nationalties. Of these more than half have taught, and nearly all occupy positions of influence and power in Turkey and other lands. Our one Albanian graduate is at the head of a prosperous boarding school in Albania, the only school in Albania in which Albanian is the vernacular language. Our two Turkish graduates write for the Turkish papers, and one of them is married to a professor in the Imperial University. Our one Hungarian graduate entered the Medical Department of the University of Berne with honor, and is in her third year of study there. Of the Armenians one has finished a medical course in Chicago, and has returned to practice among her own people. Another was the most skilled trained nurse ever known in Constantinople, and was often called in consultation by the physicians in the city. Of our Greek graduates, one is a professional nurse, at the head of the Princess' Hospital for children in Athens, and others occupy positions of influence. Of our English graduates, several have been devoted to the interests of the college in a marked degree, teaching in its various departments for very small salaries, and promoting its interests in the Alumnae Association and otherwise, with whole-hearted loyalty to their Alma Mater. There is a prosperous Alumnae Association, which has bought a piece of property for College use. There are also many students who cannot remain to graduate, who go out to teach in the interior, or become the centers of happy homes in the different nations represented in the College, and thus help to spread its influence.

We of the West owe a debt to the East, from whence we gained our Christianity, and if the virgins of the East have forgotten to be wise, and the oil has dried from their lamps, shall we not help to fill them? Is it not appropriate that a Christian College be established to restore the light that has been lost, in the same city where Chrysostom lived a life of self-sacrifice, and spoke words of wisdom in Saint Sophia, the church of Wisdom? Let us, however, give them our best modern methods and facilities for advanced honest college work that the light which we offer them may shine brightly, and illuminate the intellectual and spiritual life of all the nations of the East.

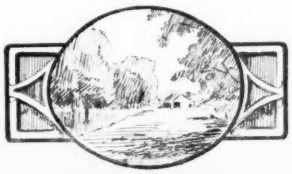
A Class in the Laboratory.

## PHYSICAL TRAINING AMONG THE JAPANESE

H. IRVING HANCOCK, in his highly interesting book on "Japanese Physical Training," is an enthusiast for those scientifically perfected systems of diet, daily habits, and physical exercise which have made of the little Japanese "the healthiest, strongest, and happiest men and women in the world." Western people who have heard of Jiu-Jitsu, as the training is called, are apt to regard it only as a system of gymnastic and pugnacious tricks. They may have seen an expert break a stick with the edge of his hand, and have heard that a practical knowledge of Jiu-Jitsu makes one of these small men more than a match for the biggest boxer or most savage hooligan to be found. The Japanese can do these feats, and their soldiers can outmarch American soldiers by fifty per cent—above all, thanks to their way of living. The writer says:

"The Japanese believe that at all seasons we eat too much, give the stomach too much work to do and therefore cannot develop the utmost strength. Undoubtedly, they are right; at least they have proved the value of their own system of feeding. Meat is not used as a heating food even in the coldest days of winter. Neither are potatoes."

Fish and hard-boiled eggs seem to be the only non-vegetarian features of their diet. They believe in drinking large quantities of cold water; the author himself averages a gallon a day, and has warded off an attack of tonsilitis by taking an extra half gallon and fasting from food. They practise deep-breathing and revel in fresh air. And they are persistent bathers, opening their pores two or three times a day with hot baths and taking cold ones to brace up.



"In winter a Japanese who has taken a bath in nearly boiling water indoors, springs out of the cask, runs out of doors, and rolls over and over in the snow. Then he returns to the house, dries himself, rubs down vigorously, and dresses himself."

On this basis the tutor of Jiu-Jitsu is ready to work. The first exercises are simple. The pupil strikes the edge of his hand, for instance, on a chair-arm or his knee for some minutes several times daily, and by the end of a year he can do the stick-breaking trick. Every trick, whether of attack or of defence, depends upon a knowledge of the various muscles of the body, upon systematically hardening them, and upon gripping the adversary so as to render him helpless, or so that his own strength tells against him and exhausts him.

# AN ACHIEVEMENT IN SUBWAY BUILDING

## HOW THE CITY OF CHICAGO WILL REMOVE FREIGHT TRAFFIC UNDERGROUND AND RESERVE THE STREETS FOR ITS CITIZENS

By BERNARD THOMSON

One of the most remarkable engineering achievements which is now in progress is to tunnel the streets of Chicago and practically remove all freight traffic below the surface. Almost nothing is known of the progress of the great work even in the city where it is being accomplished. So quietly has it been carried on that comparatively few know anything of the company's plans. The best survey of the whole matter appears in a recent issue of the Boston Transcript, doubtless owing to the fact that the majority of the capital involved in the enterprise comes from the East and that the telephone service of the company is managed by the same men who are in control of similar telephone systems about Boston.

CHICAGO is giving practical expression to the unique idea of keeping its streets for its inhabitants and forcing its freight traffic into subterranean tunnels. It is doing just the opposite of other large cities, which shove their people underground and keep the open air streets for teaming."

Such was the general summing up of President Albert G. Wheeler of the Illinois Tunnel Company in discussing the tremendous scope and far-reaching future effect of Chicago's new tunnel system. Twenty miles of this have already been completed in the business section at a cost of $5,000,000; equipment with electric locomotives and cars is being pushed rapidly, and hauling of freight will begin by August 1.

One hundred and twenty miles more of tunnel are to be built, giving connection with the South, North and West sides, even to the farthest boundaries of the city, and an expenditure of another $15,000,000 is intended by this $30,000,000 corporation, the most heavily capitalized in the state. Coal, merchandise, packages, mail, newspapers and freight of every kind are to be hauled through the tunnels, whose advent means the death of the teaming industry in Chicago. The abominably crowded condition of the downtown streets will be done away with, and it is hoped that even those streets which now are subjected to the heaviest press of drays will be able to glory in a smooth covering of asphalt.

The project is extraordinary for three main features. First, for its general character; second, for the remarkable franchise which the company holds from the city and which is termed the most favorable franchise from a municipality's viewpoint which a corporation ever accepted; third, for the rapidity and manner in which the tunnels have been built, not one stone of the street pavements having been removed while the entire business district was being burrowed.

Connection at the present time is being established from the tunnels with each of the freight yards of the twenty-five trunk railroad lines which centre within a tract of one and one-half square miles downtown. The tunnel cars will enter the railroad yards on an incline, lie alongside the railroad cars and load, and then be run back to the warehouses and stores of the business district. At these, special elevators are being installed, connecting with the tunnels, and by them the cars will be hoisted bodily into the buildings for unloading. Every big business building in the city will be given this elevator connection.

President Wheeler states that 30,000 tons of freight per day will be handled before the end of the year, and that the present capacity of the tunnels is sufficient to permit the hauling of ten times that daily amount without congestion. The trunk lines of the tunnels are 12 feet 9 inches by 14 feet, all the branch lines are 6 feet by 8. The equipment now being installed consists of 3,000 steel cars, and one hundred electric locomotives using the cog wheel and third-rail system. The cars will carry seven tons of coal, or twenty-five barrels of flour or sugar, or any package to the size of a piano. Inauguration of freight carrying will begin August 1 with the hauling of coal to business buildings and carting away of ashes.

An idea of the ultimate business to be done may be judged from the fact that Chicago merchants pay $50,000,000 annually for teaming to and from railroad terminals.

The investment in trucks represents $30,000,000, while their maintenance, including horse feed, drivers' wages and repairs, amounts to $36,000,000 annually. The amount paid altogether for teaming is stated to be greater than the receipts from all sources over the 10,000 miles of tracks of the Chicago & Northwestern Railroad.

These figures mean the cost of hauling 100,000 tons of freight daily, this being the tonnage of Chicago's main teaming area of the down-town district, where practically the entire freight of the city passes. According to Mr. H. I. Cleveland's statistics in The Oaks, the tonnage in 1893 was but 55,000, while at the present rate of increase it will amount to 150,000 tons by 1907.

Mr. Cleveland states that Chicago now teams more freight than any other city in the world daily, pointing out that the teaming of New York City, from the latest figures obtainable, aggregates 70,000 tons per day; that of Boston 55,000 tons per day, and that of Philadelphia 68,000 tons per day.

What rates the company intends to charge for freight is not known, President Wheeler's statement being that "charges will not exceed those of teaming, the costliest transportation known, while we will save 50 per cent in the handling of goods."

Whatever the rates may be, it is plain that the company feels convinced of vast profits to have ever consented to acceptance of the franchise under which it operates, it being provided thereby that the entire tunnel property goes to the city gratis on February 19, 1929, percentage of profits being paid to the city in the meantime.

Under its original franchise, granted February 20, 1899, the company was merely given rights to construct tunnels for the installation of an automatic telephone system—which has, as a matter of fact, been installed and is in active operation. It was not until July 16 last that the amendatory ordinance was passed by the City Council, which conferred the right to do a freight business, and which has been hailed with glee by the taxpayer as a triumph of franchise granting. Under this the city gets a sweeping bargain, while the teaming industry of Chicago will be wiped out of existence to pay for it.

By the ordinance it is provided that the company shall have the right to construct and operate for twenty-six years tunnels for the transmission of freight and parcels, as well as for a telephone business. It is also permitted to lease space in the tunnels to other companies, provided conveyance of passengers is not sought.

Such are the privileges—the remainder of the franchise being devoted to enumeration of the city's rights and the company's obligations. It is enacted that on February 19, 1929, the tunnels and conduits are to become the absolute property of the city of Chicago, free from all liens and encumbrances. Further than this the city reserves the right to terminate the franchise in twenty years, provided twelve months' notice is given, and purchase the property and operate it. During the interim the city is given the right to use the conduits, without charge, for telegraph, telephone and electric light wires.

In addition to this bargain the city is to be paid compensation as follows: For the first ten years, five per cent; for the second ten years, eight per cent; for the balance of the term, twelve per cent of the gross receipts.

The company is compelled to have in operation fifty miles of tunnels in ten years, and it must have in operation or facilities to operate telephones for twenty thousand subscribers in

five years. Failure to meet these conditions works a forfeiture of all its franchise rights to the city. In regard to rates charged by the company the city reserves the right at all times to insist upon a reasonable regulation.

In regard to the telephone system, 5,200 telephones have already been installed and are in operation, and plans are under way for installation of 20,000 more at once. The company is in the field as rival to the long-established Chicago Telephone Company, and is as unique in its telephones as in its tunnels. It is the automatic telephone which is being introduced by the Illinois company, for which it holds over 200 patents, and for the manufacture of which a large manufactory has been built in Chicago.

By the automatic system the person using the 'phone is his own operator. By means of a numbered dial he makes his own connection with the desired number, any calling up of central being entirely done away with. This service is absolutely secret, no third person being able to overhear what is said or to break in on the conversation in any way. This telephone, under management of the same owners, is in operation in Fall River, New Bedford and other cities adjacent to Boston.

It is Eastern and not Chicago capital which stands back of the entire revolutionary enterprise, the funds having been obtained in Pennsylvania. Company officials proudly declare that "this is the only subway in any city in the world built by private capital and not having its securities guaranteed by the municipality."

It is only within a fortnight that the property has passed into the hands of the Illinois Tunnel Company, this being a new company formed in succession to the Illinois Telephone & Telegraph Company, although the persons interested are the same. The deeds transferring the property of the old company to the new one were filed January 28, the new company having $30,000,000 of stock, with an authorized issue of $30,000,000 of bonds, of which $15,000,000 have been issued. The remainder are held until issuance is authorized by the directors.

It is believed that as an engineering feat the construction of the twenty miles of completed tunnel in the business district established a record, for it was accomplished without moving a stone from the street pavements, without an accident, without damage to abutting owners, and without complaint to the city hall during the period of construction.

The work was done by means of shafts sunk at advantageous points, through which the rock and soil were removed as tunnelled and carried away. George W. Jackson, the engineer in charge, in a summary of work done from eight shafts for a selected period, shows that the average feet constructed per day from all shafts was 328, the total excavation in 188 working days being 175,000 cubic yards.

The work was begun on September 3, 1901, and the first twelve miles were built in ten and one-half months of actual work. The same rate of progress could have been kept up as regards the remaining eight miles if desired. Little difficulty was encountered with water, as the tunnels are eighteen feet below lake level and twenty-four feet six inches below the surface of the street. Concrete was used in construction, the smaller conduits being built with thirteen-inch bottoms and ten-inch walls of concrete, while the trunk system is constructed with twenty-one-inch bottoms and eighteen-inch walls of concrete.

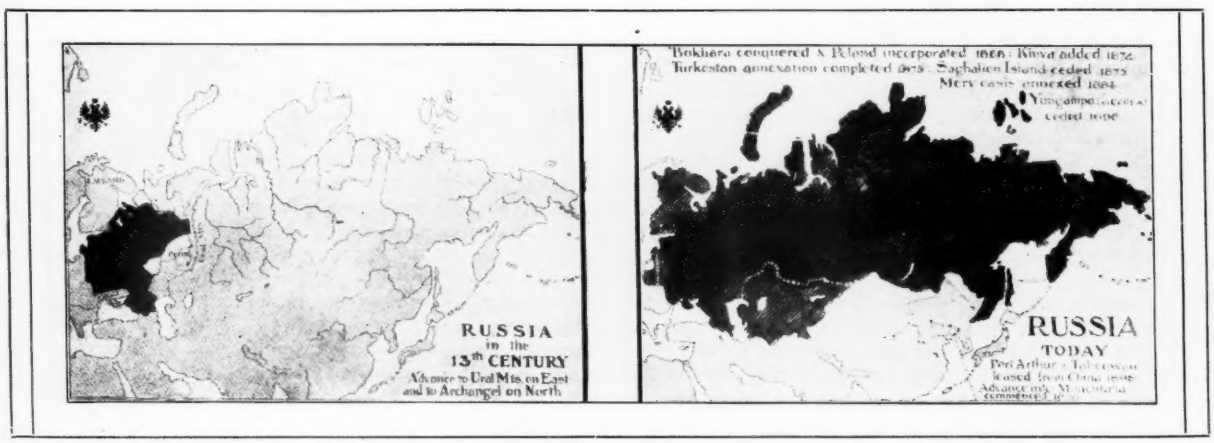
As explained by Mr. Jackson, the work of dirt removal was done through use of 900 tramcars, propelled by the pneumatic system, which ran on a gauge fourteen inches wide, a double track being laid throughout the entire tunnel excavations.

The cars were hoisted by power-driven elevators up the shafts and the excavated material dumped into wagons, the hauling away of which was done principally at night to avoid interference with usual traffic. So quietly was the work done that little public attention was attracted to it until Chicago woke up one morning to find that its entire business section had been burrowed under by huge tunnels, of sufficient capacity to handle all the freight of the city for many years to come.

It is hoped that the construction of the 120 further miles planned to be built, and whose construction is now being pushed, will be accomplished as successfully. By these outlying lines of tunnel it is intended to do the parcel delivery of the residential districts, and to make connections with carriers at the various suburbs which extend for miles in all directions about the city.

In short, the conception is for a gigantic monopoly of the entire carrying trade of 2,000,000 persons, in which the creating corporation, after enjoying the fruits for a quarter of a century, will be succeeded by the municipality itself.

For Chicago-at-large some patent benefits will result—the ill-regulated congestion of her streets will be relieved; her barbaric street car service encouraged to approach something like reasonable speed; the filth of her disgraceful pavements lessened. With the passing of present teaming conditions, Chicago could asphalt her downtown streets and might even be induced to sweep them annually. The tunnels will not only cause a revolution in traffic; they may work a reformation in Chicago's indifference to civic cleanliness.




*Courtesy of Messrs. Harper Bros.*

RUSSIA'S ADVANCE.
This interesting map shows the Russian Empire of seven hundred years ago.

RUSSIA'S ADVANCE.
This map shows the expansion of the Russian Empire in recent years.

# RETURN OF SEARCHERS FOR THE SOUTH POLE

## A NOBLE SHIP LOST AMONG ICEBERGS

### AND GREAT PRIVATIONS ENDURED BY EXPLORERS IN ANTARCTIC REGIONS

*Translated Especially for Our Day.*

Dr. Otto von Nordenskjold.

THE members of the Swedish Expedition to the South Pole have returned safely to their own country. They endured the rigors of two Antarctic winters, and the sum of their experiences hardly finds a parallel in the accounts of other travelers who have invaded the icy waters of the extreme north or the unknown regions of the south of our planet. Their tale has touches of tragedy; for a part of the expedition saw their ship sink one extremely cold winter night—crushed by the mighty force of huge masses of ice. A feeling of unutterable lonesomeness and despair must have seized them when they saw the Swedish flag, waving from the half-mast, disappear forever in the unfathomable depths of the icy South Sea.

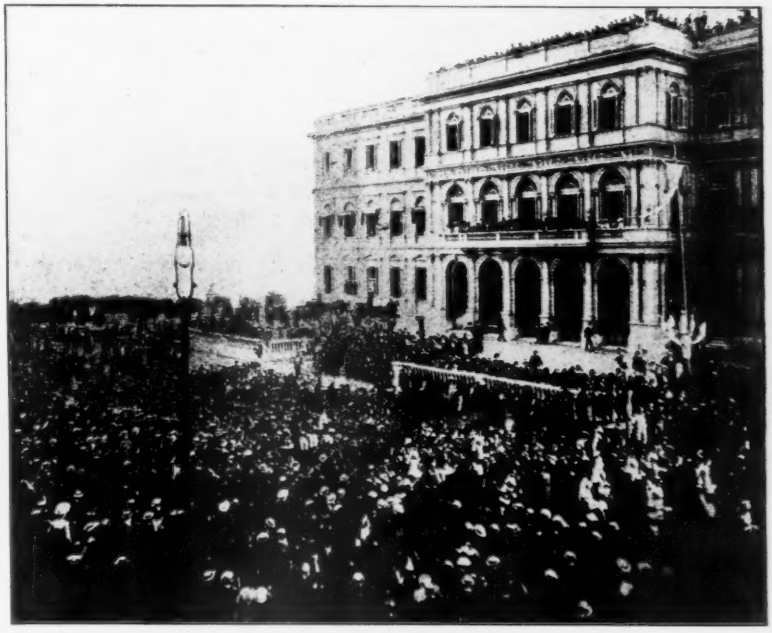
Dr. Otto von Nordenskjold, a nephew of the famous Arctic explorer of the same name, was in charge of the expedition, which sailed from Buenos Ayres on December 20, 1901. Captain Larsen commanded the vessel. Some of the members of the expedition remained in winter quarters at Snowhill with Dr. von Nordenskjold.

The Antarctic started from there on February 21, 1902. Not one of the men who remained behind thought for a moment that they would have to wait nearly two years before a human being would cross their path, or that they might never see the reliable old Antarctic again. This ship was a polar schooner, rigged like a bark, and the record of its work in the vicinity of Greenland and Spitzbergen proved its fitness for the task undertaken by the explorers. Scientific work and trips made on sleds gave very profitable results during their stay in winter quarters. But there were hardships to be endured from the severe weather while they spent the first summer at Snowhill. Shortly after the Antarctic left port, a cyclone-like storm arose and continued for three days with a temperature of 12 degrees below zero. No one expected such cold weather in that degree of latitude. The young Greenland dogs, highly valued because of their prospective usefulness, were frozen during the storm. The severity of these gales made scientific research almost impossible, and the trips made on sleds, which were drawn by the dogs that remained, soon had to be abandoned.

In spite of all obstacles, Dr. Nordenskjold made several trips, accompanied by Sobral and Jonassen, and the results proved to be valuable additions to geological and geographical science. Their longest sleighing trip lasted thirty-four days, during which time the temperature averaged 20 degrees below zero. Dr. Nordenskjold made a photograph of the surrounding country from the top of a high ice-mountain. The meteorological observations, made to a very large extent by Sobral and Bodman, must be regarded as the most important result obtained by the expedition. Sobral alone is responsible for the magnetic observations.

In the summer of 1902 the Antarctic was looked for with considerable impatience, and when it failed to arrive it was found necessary to prepare for another winter's stay. And still the Antarctic did not come. Three men, Dr. Guner Anderson, Lieutenant Duse and a sailor named Gunden arrived instead, on October 12, 1903. They had left the ship nine and one-half months before that time, to find a land route that would lead them to winter quarters. They, too, were in complete ignorance as to the fate of the Antarctic. The story of their sufferings and disappointments is one of the most pathetic accounts ever given by polar explorers. They lived in a stone-hut, built without tools of any kind. A tin can served as a stove, and penguins and seals formed their source of supplies. Despite all these hindrances they worked with unabated zeal at their scientific tasks. One can readily imagine that they anticipated the arrival of the Antarctic with much impatience. The Argentine relief expedition, under Captain Inzar, came in its place, but they, too, could give no news of the ship.

The tragedy that led to the loss of the brave vessel did not become known until its crew had been picked up by these rescuers. An attempt was made on December 14, 1902, to direct the course of the Antarctic southward, by penetrating to the north coast of the island Joinville. But the ice made any progress impossible at the very start. Huge blocks of ice in compact masses, and others shaped like towers and pointed spires rose from the snowy, white background. The ice began to move on January 1, 1903, and the Antarctic soon found herself hopelessly shut in. The wind began to blow from the

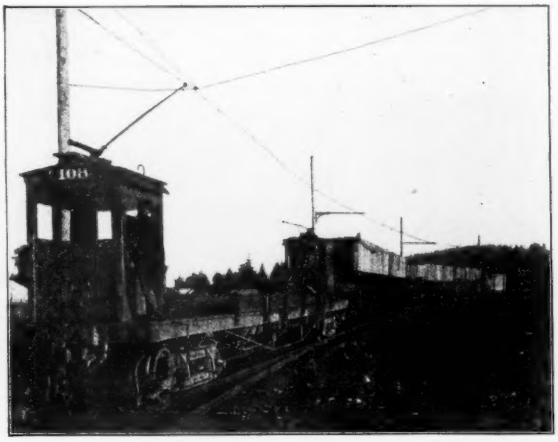


Great Reception to Explorers at Buenos Ayres.

south on January 9 and a snowstorm followed. The pressure of the ice became stronger, and by the time the bow of the ship showed only four feet above the water, everyone knew that a catastrophe could not be averted. The pumps were set to work, for the water was pouring into the ship through a large opening in its side. There was no sign of a panic when orders were given to begin salvage work. After long, terrible days the situation became untenable on February 2.

An attempt had previously been made to steer in the direction of Port Island, but a strong wind drove the ship back into the ice-bergs. The brave band almost despaired when they realized that all their efforts were in vain. The Antarctic was fastened to a huge block of ice, upon which clothing, boxes and barrels were stowed. At eight o'clock in the morning the members of the expedition met in the saloon. The Swedish flag was hoisted; then they landed and cut the ropes. The current drove the ship away from the ice-block, and it disappeared gradually below the water. On February 12, 1903, at 12:45 p. m., the Swedish flag disappeared in the Antarctic waters.

An Argentine ship, the Uruguay, took the expedition to Buenos Ayres, where they were received with great honors. Only one sailor, Wonorsgaard, lost his life on the island of Paulent. The news of the return of the expedition was hailed with joy wherever men take an interest in the exploits of bold and daring explorers. Science owes an everlasting debt of gratitude to these brave men.




An Electric Freight Train in Oregon.

## THE CITY OF HAVANA AS IT IS TODAY

SINCE the war with Spain comparatively little has been written concerning Cuba and its interesting cities. The latest is a communication to the Springfield Republican from F. R. Richmond during his visit to the City of Havana. He writes:

"The Prado is to Havana what the Champs Elysees is to Paris. On fine Sunday evenings it is an interesting sight, the two roadways crowded with carriages so as to be almost uncrossable, while the two broad central walks are filled with people on foot. There are three rows of grass plats and two rows of carefully trimmed shade trees its entire length. Havana has also quite a number of small parks and squares. The large and the small seem to be carefully trimmed and cared for, and are well provided with tropical trees, palms, plants and foliage, artistically and fancifully arranged.

"Excepting the Prado and a few others of note the streets are much like those of other Cuban cities. The electric cars are usually run on the less popular and least traveled streets. Obispo Street has the best stores for drygoods, household goods and fancy articles, and is therefore the most fashionable shopping street. O'Reilly Street, one block from it and parallel to it, is second to it as a shopping place. Neither have street cars; both are so narrow that there is only just room for vehicles to pass each other between the curbings, and the walks are only wide enough for a single person, so that in pasing one must step into the street or into a shop door. There are many awnings, and they all cover the entire width of the street, from store to store. Streets having electric cars are usually no wider, leaving just room for a single person to stand between a passing car and the buildings. As all streets are fully built up, it is imposible to see an approaching car around a corner, and as the cars run at a very good speed, there are numerous accidents—often serious. Here the motorman and not the company is held responsible for accidents, which places him in a very trying position; for if he cannot make schedule time he loses his place; and, on the other hand, he is liable to imprisonment for accidents. Of late the newspapers have been taking up his case, and as a result the company has consented to allow six minutes more for making the belt circuits.

"A large portion of the buildings are only one story high; very few are more than two stories, and none have basements. The stories are all from fifteen to twenty feet in height, with window openings from the floor to near the ceiling, closed by folding-door shutters, with stationary iron grills just outside the shutters, giving them a prison-like appearance. But in the second stories are projecting iron balconies instead of the grills. Sometimes there are a few small lights of glass in the panels of the shutters, but the glass is not very much needed, as the shutters are open most of the time. The doors are double, and wide and high enough for a large cathedral, and there is a small door in one of the large ones for night use. Often the door opens directly into the sitting-room; in other cases it opens into a wide hall, where the family coach is kept, and the horses are often kept in the same building. Chickens do not so commonly form a part of the family here as in other Cuban cities, but are sometimes seen. New houses, even by Americans, are built on the Cuban plan, it proving much better fitted to the climate than our northern building. However, some improving modifications are often made by Americans.

Many Americans are building homes in Vadado, a suburb of Havana, four or five miles west on the coast, neatly laid out, with somewhat wider streets, and buildings set back from the street line. The roofs are usually flat and covered with brick tiles laid in Portland cement, with outlets arranged to save the water. The roofs have a brick balustrade, so as to make a nice place for hanging hammocks, and a fine place to sit after sundown. Vadado has a five or six-minute electric car service, and is growing rapidly; lots that could be bought four years ago for $50 now sell for $1,200. A piece of property offered for $10,000 three years ago cannot now be bought for $50,000.

"The market at Havana is an interesting place, covering nearly an acre of ground, better seen than described, especially in the morning, when the servants and others are procuring their daily supplies. Some of the fruit departments look tempting, but as much cannot be said of some of the fish and chicken departments. At home we are sometimes suspicious of the quality of the milk we are receiving, but here you can have ocular proof of its quality, purity and freshness; for a herd of animals is brought to your door and remain in the street while the milk is extracted."

# ASBESTOS: WHERE MINED AND HOW MANUFACTURED

## A PECULIAR MINERAL SUBSTANCE

### IT HAS RESISTED THE HEAT OF AGES AND NOW PROTECTS HUMAN LIFE

By A. FREDERICK COLLINS

One of the most commonly used materials in the majority of homes is asbestos, and it is the least understood. Children watch with wonder the placing of an asbestos mat over a flame and fail to understand why it is not consumed. An explanation of this is found in the article which follows from a recent issue of the Scientific American. It will enable parents not only to understand this strange substance better themselves, but also to explain it to their boys and girls.

ASBESTOS is one of the most remarkable substances found in nature, and is classified by geologists as a peculiar species of the hornblende family of minerals. Its composition is chiefly silica, magnesia, alumina, and ferrous oxide, and consequently unconsumable, hence its name. The fibers formed by the chemical combination above given are perfectly smooth, and in this respect are different from all other known fibers.

Paradoxically, it is the link which completes the chain between the vegetable and mineral kingdoms, and is in fact a mineralogical vegetable possessing the curious properties found in both, for it is at once fibrous and crystalline, elastic and brittle, heavy as a rock in its crude state, yet as light as thistledown when treated mechanically.

Added to this, its fibers, soft, white, and delicate, have, by their inherent quality of indestructibility withstood the action of the elements since the world began; and through all the countless ages during which the hardest rocks surrounding it have been reduced, this mineralogical mystery has remained intact, having successfully resisted the assaults of fire, acids, and time. Asbestos is found widely distributed throughout the world, although the principal supply of crude asbestos suitable for the manufacture of fireproof cloths and curtains comes from Canada, about seventy-five miles from Quebec.

The Italian mineral has a fine, silk-like fiber, but is lacking in the essential characteristic of strength. The product obtained from South Carolina has a soft, woody, yellowish fiber, which quickly powders under pressure. The South African asbestos, as one might naturally infer, is of a dark slate or black color, with exceptionally long, strong fibers, but owing to its stiff and horny texture, it cannot be manufactured into a fine fabric, hence the superiority of the Canadian asbestos, and its large consumption in the United States.

The mining of asbestos differs radically from the mining of other minerals, since no shafts are sunk, but excavations are made in the open, somewhat after the manner of a stone quarry. Canadian asbestos, however, is found in narrow veins or seams about an inch and a quarter in thickness, and embedded in rock which is easily severed from it. The strata of asbestos, which may be vertical or horizontal, are found in practically detached deposits, and are as elusive as those of zinc-bearing ore, and can only be determined by exploring for them.

The rock to which the mineral is attached shows on fresh fracture a serpentine mineral of a green shade containing finely-divided particles of chromic and magnetic iron. The asbestos on cleavage presents a brilliant, dark-green surface by reflected light, but the fibers after they are detached are perfectly white. The act of separating the mineral from its matrix of rock is termed "hand cobbing," and after this process the mineral is shipped to various factories in the United States.

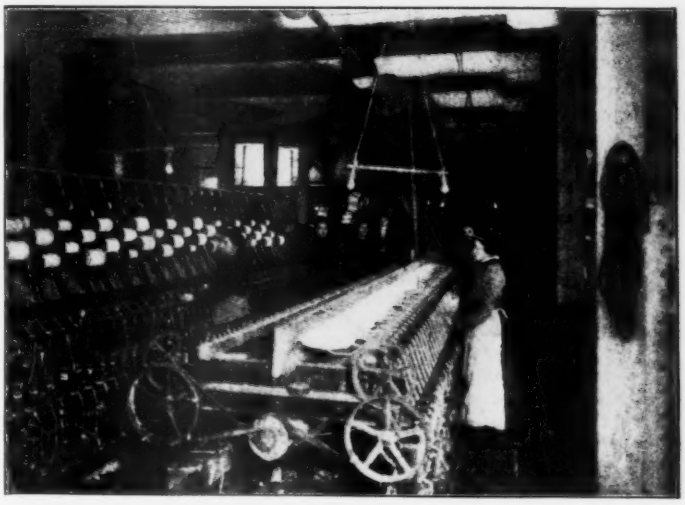
The process of manufacture begins by placing the asbestos mineral in a chaser mill, a machine comprising a rotating edge-wheel revolving at the end of a radial arm in a trough, which crushes the mineral, dividing the fibers without destroying them. The result is a snowy mass of mineral wood ready for winnowing, a method of removing the minute particles of rock still clinging to the fibers very much like the winnowing of grain. This is done by means of a blast of air, which separates and blows away the foreign matter, leaving the fibers in a refined state and in proper condition for the third stage of manufacture.

The fluffy stuff now goes to the carding room, just as though it were genuine wool sheared from a sheep or pure cotton fresh from the plant on which it grows, instead of a mineral substance that in its original state was mined like a lump of anthracite coal.

A carding machine, similar to that employed in preparing wool, cotton, or flax fibers before spinning, has been adopted by the manufacturers. The problem of mechanically combing these fibers was no small one, and the carding takes place in a machine having a large central rotating cylinder covered with card clothing, that is, strips of leather set with projecting wires termed teeth. Around the main cylinder there are a number of smaller cylinders, also provided with card clothing, which engages the teeth of the central cylinder rotating in the reverse direction.

This machine straightens out the fibers and lays them parallel; after passing through the first breaker, they are fed into a second carding engine or breaker, which is set to a finer gage than the preceding. A third and last carding process takes place in a machine called a finisher or condenser, when all the irregularities are eliminated, and the fibers are stripped from the final cylinder by means of a fly-comb, and are converted into unspun threads, when they are delivered on a traveling apron or endless band, and are gathered into rows by reciprocating scrapers; they are then condensed, and the process is continued in the coiling cans.

In spinning the yarn, the rovings are delivered to the spindles on a carriage, which then recedes, when the fibers are twisted, and returns when the spun asbestos yarn is wound on the spindles. The spinning frames do not draw the yarn, and no strain is placed on it until after it is twisted. This brings



Weaving Asbestos Cloth. *Courtesy the Scientific American.*

the manufacture of the fireproof material to a point where it is to be woven into cloth, packing, or other forms.

One of the leading manufacturers has made an improvement in weaving asbestos cloth for theatre curtains; it consists of two strands of asbestos spun around a strand of high-temperature-melting brass wire, so that the wire is completely embedded and concealed. These asbestos metallic strands form the warp, so that the threads run the long way of the cloth when finished. The welt, or filling-in cross threads, is made of plain, pure asbestos. Such a curtain will stand well under a severe high-temperature test without breaking.

Flooring and woodwork in general may be easily replaced by compressed asbestos fiber board, and it has been shown that the latter may be stained, polished, and finished to as high a degree as wood. All the upholstery should be of pure asbestos cloth, and carpeting is also made to take the place of the combustible vegetable and animal fibers now used so extensively. One of the peculiar properties of asbestos carpeting is that the longer it is in service, the tougher it becomes.

Asbestos is utilized in the arts in many other forms than cloth; it may be worked into a pulp, and a fire-proof paper is obtained. This paper is now used on roofs, between walls, flooring, etc. Fireproof rope three-eights inch in diameter for the suspension of curtains and other uses is made having a tensile strength of 1,650 pounds per foot. High-grade asbestos plaster is fireproof, soundproof, and hangs together with great tenacity when subjected to water.

Asbestos mineral with rock as it comes from the mine costs $200 per ton, but after it is stripped the long fibers are worth $1,500 per ton. When these are made into cloth it sells for $3 per square yard; when made into curtains, the sewing is done with asbestos thread.

## THE TORPEDO IN MODERN WARFARE

"THE next great naval war," remarked a naval expert not long ago, "will bestow upon the torpedo and its users a halo of romance which will eclipse entirely that surrounding the gun and the ram." "The terrible potentialities of under-water warfare," says a writer in the Illustrated London News, "appeal vividly to the imagination, and the sinking of a mighty line-of-battle ship costing over a million sterling by the deadly torpedo, costing some £300, sets one wondering whether these huge 'mailed mastodons' will give place to surface and submarine torpedo-craft in the naval battles of the future."

Under-water fighting is carried out by "mines" and "torpedoes." The former is a stationary charge of explosive contained in a case moored beneath the surface of the water, which is fired when the enemy passes over it. The torpedo is a "crewless submarine," provided with the power of aggression. The mine awaits the enemy, in fine, while the torpedo goes to seek him.

Russia and Japan both employ the "Whitehead" torpedo, invented by the late Mr. Whitehead in 1866, and they carry it on battleships, cruisers, torpedo gun-boats, destroyers and torpedo-boats.

The first torpedo was a very much less terrible engine of destruction than it is today, but it has undergone vast changes, and may now be described as "the most wonderful machine in the world." It carries in its explosive-chamber 200 pounds of guncotton, and when its nose comes into contact with a ship's side a pointed steel rod is driven in against a detonator cap, and the explosion is sufficient to tear a large hole in the hull. It is fired from battleships and cruisers by submerged tubes (above-water tubes are being abandoned), and from torpedo craft by revolving tubes carried on deck; it is blown out of the tube by compressed air, and on entering the water it sinks to the required depth, running submerged until it meets its prey. Its wonderful little engines are driven by compressed air, and it is prevented from rising to the surface or sinking to the bottom by means of a pendulum and a hydrostatic valve, which acts on the horizontal or diving rudders at the stern; it is also fitted with screw propellers and vertical rudders, and is kept on a straight course by a spinning wheel, or gyroscope. Altogether, it well deserves its name of a "fish of steel with the brains of a man." When the automobile torpedo came to be adopted by all the great Powers, special craft were devised by which they could be rendered more efficient.

First came the torpedo-boat. Battleships are the heavy artillery, cruisers the infantry, and torpedo craft the cavalry of modern naval warfare. France went in largely for torpedo-boats, and to meet this a new type of vessel was produced by Great Britain—the torpedo catcher. Unfortunately, these boats never succeeded in catching anything; and, indeed, were so slow that they were often during manoeuvres themselves caught by the little torpedo-boats.

Engineers and shipbuilders now set to work, and eventually devised the torpedo-boat destroyer, the most complete embodiment of energy and waspishness afloat, and the most perfect example of the combined sciences of naval architecture and marine engineering ever yet produced. They are the fastest craft afloat, steaming 25 to 32 knots an hour, and some are fitted with turbine machinery making 35 to 37 knots per hour.

Many of the Japanese torpedo craft were built in England. There is no doubt that in torpedo warfare the Japanese are superior to the Russians, and have indeed little to learn from any other Power. In the last two naval conflicts—the Chino-Japanese and the Spanish-American wars—the torpedo and the torpedo craft did not get a fair chance. The Chinese officers were only too glad to get rid of these dangerous weapons, and often hurled them overboard. The Spanish commanders took their torpedo craft out in broad daylight, and learnt the folly of this proceeding.

The present war should shed most valuable light on the possibilities of modern torpedo warfare. It will be a case of battleship against destroyer; the performances of destroyers and torpedoes will decide to a very great extent many debatable points in naval tactics.

Can He Keep the Lid On?—*Brooklyn Eagle.*

# CHICAGO WOMEN IN TRADES-UNIONS

## THIRTY-FIVE THOUSAND WORKERS ORGANIZED

### TWENTY-SIX TRADES REPRESENTED IN THE MOVEMENT FOR PROTECTION AND PROFIT

By DOROTHY RICHARDSON

It is still an open question in many minds as to whether Samuel Gompers or D. M. Parry is right in contending for or against trades-unions for men. Some who look with favor upon trades-unions for men do not approve of them for women. But since women have entered the business world as so many individual breadwinners, it is to be expected that in their struggle they will resort to whatever methods men have found helpful to their interests. The extracts which appear below are from an article in Leslie's Monthly Magazine, which sent a special representative to Chicago to examine the movement.

THE Woman's Labor Movement has developed in Chicago as nowhere else in the country,—developed into a complete and powerful system, comprising an overwhelming majority of the workers in twenty-six different trades, and embracing an aggregate membership of thirty-five thousand women.

As a direct result of these organizations the wages of women have increased from a minimum of ten to a maximum of forty per cent. Their working day has been reduced from a basis of sixty hours per week and upwards, to a maximum limit of fifty-three hours per week, with ample pay for overtime. Child labor has been totally abolished in those industries where it had long been most flagrant, and in the few instances where it yet remains it is doomed to an early death, so unremitting is the war now being waged against it. Along with these have come radical sanitary improvements,—larger and better ventilated shops, and, not least important, a generous and well-regulated allotment of holidays and half-holidays. The inter-relationship of employer and employee has been reduced to a complex system of rules and agreements mutually binding and reciprocally effective, which the millionaire proprietor cannot disregard with less impunity than may the young girl toiler in his shop or mill. Today neither the clothing manufacturer, nor the steam laundry proprietor, nor the brass founder, nor the pork packer, nor any of two score other employers, can dismiss an apprentice girl without the full consent and approval of the "lady" walking delegate of the latter's Union.

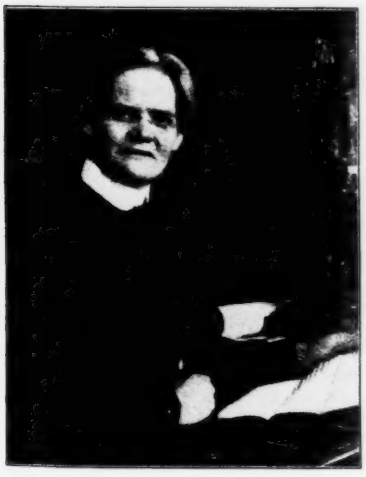
With two exceptions, there is no line of feminine industry in all Cook County today which is not more or less thoroughly unionized. The two exceptions are the servant girls and the stenographers.

Among the leading women in this movement is Ellen Lindstrom, organizer and walking delegate of eight thousand garment workers. Long before she ever heard of Chicago, or dreamed of taking part in its stirring drama, Miss Lindstrom was teaching school in Sweden. For five years she traveled all over Europe as governess in a noble Danish family. She knew Ibsen and Selma Lagerloff, and many others of the Scandinavian literary galaxy, and under such influences had planned for herself a literary career. But Fate destined her to come to Chicago—a stranger to a strange land. And Chicago put her to work sewing men's "pants" in a little North Side shop. As she bent over her machine the Swedish school teacher learned English, and all the while her analytical Scandinavian mind was busy studying the conditions around her. Why were wages so low and the hours so long and the shops so narrow and dirty and hot and why were children allowed to work?

"I had met August Bebel once in Geneva, and his memory set me to thinking about such things, which I knew were not right," Miss Lindstrom will explain to you with her quaint accent. Ten years ago she began active operations towards a remedy, and as a direct result of the organization of the eight thousand women working in the clothing trades their wages have been raised 40 per cent, the hours reduced to ten a day, with ample wages for overtime, half holidays Saturday, and no work whatever done, under any circumstances, on Union meeting nights.

In her short walking skirt, her dark-red worsted sweater and Fedora hat, Ellen Lindstrom is a picturesque figure. From morning till night she tramps from factory to factory, adjusting disputes between her people and their employers, reinstating where discharges have been made without warrant; collecting dues from members and fines from employers for violations of the ironclad contracts which women's Unions insist upon quite as strongly as the men's. As for strikes and lockouts in Miss Lindstrom's trade, thanks to her years of labor, they have become a thing of the past in Chicago.

The most serious work that has ever fallen to the lot of the Labor Movement has been done and is being done to-day by the organized teachers of the Chicago public schools. Under the executive skill of Catherine Goggin and the astute generalship of Margaret Haley, the erstwhile meek and reserved teachers have revolutionized School Board affairs in Chicago, and



Ellen Lindstrom

Catherine Goggin

Margaret Haley

introduced the unique spectacle of an educational body working hand in hand for a common purpose with the hod carrier and the coal teamster. More money, less work, shorter hours. To get these things, the teachers have stormed the City Council; they have plead their causes in the Circuit Courts, and when they failed to get justice in Cook County, they went to Springfield for it, and what is more to the point, got it.

For years the school problem had been a source of vexation and protest on the part of the public as well as the teachers. Notwithstanding the fact that the latter were notoriously underpaid and inhumanly overworked, the former were being taxed to the very limit of the best citizenship endurance.

In 1897 things reached a crucial point, and the teachers formed a union for aggressive work. True to the traditions of the great movement with which they had cast their fortunes, they immediately asked for an increase of salary, from a maximum of $825 per year to $1,000 for teachers of ten or more years experience. They succeeded in getting seventy-five dollars more per year in 1898, and were promised another fifty dollars the succeeding year, when a new revenue law would come into effect. The year 1899 passed but nothing was heard of either the extra fifty dollars or the generous revenue law. Then they asked the Board for an explanation, and were told that the new revenue law would not produce as much money as had been raised under the discarded law. That meant a cut next year instead of a raise.

Astonished and chagrined, the Teachers' Federation, which now numbered more than three thousand and had become affiliated with the Federation of Labor, appointed their president, Miss Goggin, and Miss Haley as a finance committee to make some investigations.

This was in the Christmas holidays, between 1899 and 1900, when they were off duty in their school rooms. The finance committee's report showed that during 1899 approximately two hundred and thirty-five million dollars worth of taxable franchise property in the city of Chicago had been omitted from the assesor's rolls. At the request of their organization, Miss Haley and Miss Goggin resigned from the school room to pursue the work of investigation. Thus two of the veteran women educators of Chicago became veritable walking delegates.

After long and arduous work the committee took the matter to the courts, and as a result of its efforts the Circuit Court of Sangamon County found that the companies in question had the amount of property alleged in the petition of the teachers, also found that it had not been taxed, and ordered the State Board of equalization, whose duty it was, to tax such property and to put those companies on the assessment roll for the year 1900.

As a result of five years' work the revenues of the Board of Education have been increased a quarter of a million dollars each year since 1900, and every teacher in the system has received a proportionate raise in salary.

## ANIMALS EXTINCT WITHIN RECENT CENTURIES

PROFESSOR Ray Lankester has been delivering some popular lectures at the Royal Institution of London on "Extinct Animals," in the course of which he called attention to the fact that while the title suggests a period long years ago, yet the recent centuries have seen the last of many animals, and others are now dying out.

"In this country," he said, "the grey wolf existed at the end of the fourteenth century, and was still to be found in France and Germany. The beaver, again, existed in England in the time of Charles I., and still lived so near as France. Caesar described wild oxen as living in Europe, but now there are none, for it was probable that the wild cattle kept in some parks in England are not the same animal as was mentioned by Caesar. The quagga used to be found in South Africa, but is now extinct; yet a specimen was living in the Zoological Gardens twenty-five years ago. The same fate of extinction seemed to threaten the giraffe from the efforts of shooters—I cannot call them sportsmen—in South Africa, but happily the animal still exists in Equatorial Africa.

"A curious instance of extinction was afforded by the sea-cow of the Behring Islands, a huge animal twenty feet long, related to the manatee and dugong; ten years after it had been described by Steller it had been exterminated by sailors who had gone to the islands and killed it. The celebrated animal, the great auk, which resembled the penguin, but was related to the puffin, lived in the rocky islands off the North of Scotland, and only became absolutely extinct sixty years ago. The dodo became extinct almost as soon as it was discovered in Mauritius by the early explorers. There was once a specimen in the Ashmolean collection at Oxford, but it became moldy, and as they did not like moldy things at Oxford it was destroyed."

"Great changes in the appearance of animals have taken place. Elephants' ancestors had no trunks:

"The present horse has only a single hoof, or toe, but it can be traced back to an ancestor in Miocene times which had three toes—the middle one on the ground, and two others hanging behind. Earlier still in Eocene times there was found an earlier ancestor which had four toes on the front feet, though only three on the back ones, and before that the phenacodus, which closely represented the ancestors of hoofed animals, had five toes. Even now the legs of the modern horse still present traces of the two lost toes, and occasionally a foal is born which reverts to its distant ancestors and gives us a modern three-toed horse."

Brains have grown larger, he asserted:

"There is something like ten times more matter in the brain of a modern rhinoceros than in those of his ancient connections, though even the modern rhinoceros, to judge from what was seen of him at the Zoological Gardens, was not a very intellectual animal. It appears that the size of brain is related to power of learning; a small brain is enough to carry on with, but if an animal is to learn it must have a bigger one. Man has the largest brain of all animals, and he is the animal that learns most during his individual life. It is interesting to note that development in modern animals appears to have gone on in the same direction towards larger brains."

In no class of animals has change been more marked than in lizards, for the ancestors of the modern, harmless, little, alert creatures of a few inches long were huge and terrible monsters standing as high as 17 feet.

There has not been a general diminution in the size of animals in recent ages, according to Professor Lankester:

"The African elephant is as large as any elephant that ever lived on this earth, and larger than many fossil elephants. The present dray-horse, again, is bigger than any of the fossil horses, which become smaller as we go farther back. In the sea the whales came into existence in later geological times, and they are bigger than any animal that has ever existed."

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A writer in Electricity says it has been discovered that the ageing of a violin can be artificially secured by exposing the wood to X-rays. The beautiful tone which has heretofore resulted from a natural ageing of the wood for fifty or sixty years can thus be obtained in a single day. If this be true Stradivarius violins will be no longer at a premium, except in so far as perfection of manufacture is concerned; though it is probable that, as in most other processes, natural ageing wil yield better tones.

# A MODERN GARDEN OF EDEN

## THE WONDERS OF NATURE AS SEEN IN CEYLON UNDER CAREFUL CULTIVATION

By COUNT KUNO KARDENBURG

*Translated from Vom Fels Zum Meer*

Avenue of Royal Palms.

THE botanical garden in Peradeniya certainly ranks first among the numerous wonders of beautiful Ceylon. Perhaps the hanging gardens of Senniamis were more highly developed from an artistic point of view, but they could not have been more beautiful. Nature and human skill have here produced the most magnificent and unique garden in the world. A comparison with the original garden of Eden must be in favor of the modern one, because it has the advantage of scientific supervision. No one will dare to assert that the tree of knowledge in the former garden had a neat porcelain label, similar to those attached to every flower and shrub in the garden at Peradeniya. And these labels are not as conspicuous as they are in our botanical gardens, where one finds whole beds of them, often without even a modest plant to enhance the view.

Yes, our botanical gardens are a labelled nothing as compared to the tropical vegetation of Peradeniya, with its bamboo trees growing twenty-four inches in one day, and the marvelous pandanus, whose blossoms gain three feet in as many hours while they are unfolding. This is in reality a royal garden. It has an area of sixty hectares, and it is situated about two and one-half miles south of Kandy, the old capital of Ceylon. A bend of the Maharvelli-Ganga almost encircles it, and the peaceful waters of the river, the scenic beauty of its shores, with the magnificent tropical vegetation form a romantic setting for this gem.

A fine laboratory and an institute of plant biology give the scientist every opportunity to work on the rich material which he has collected, while the anatomical drawings—giving the analysis and showing the habits of growth of the rarest plants—made by skillful Singalese, who carry out their task with truly Oriental patience, as well as the museum with its interesting collections of woods, bark and fibers are valuable aids. Shaded conservatories shelter the rarest species of orchids, catleias, stanhopias, oncidias and many other species of the most remarkable and phantastic children of the floral world.

The non-professional will be apt to disregard all these scientific advantages, for nature in all her beauty will undoubtedly prove more fascinating. The entrance to the garden, seemingly leading to some enchanted palace, at once arouses his enthusiasm, and after he has walked, almost reverently, through an imposing avenue of royal palms, the overwhelming grandeur of a giant ficus, with its roots winding like terrible serpents about the silver-grey trunk, and the branches that penetrate into the warm earth, where they form new roots, from which huge trees will grow, excite his wonder and admiration. The silver bamboo tree, rising gracefully until it towers as high as a house, will recall visions of sparkling pyrotechnic wonders, and the delightful concerts, nature's sounds produced by untold millions of insects, birds, cicadees, and lizards, forms a fitting accompaniment to all this splendor.

The tropics are, in very truth, the land where milk and honey flow. A glance at all the delicious things that grow without cultivation for the dusky children of the south-land in the botanical garden of Peradeniya will prove this assertion. The palms alone furnish all kinds of useful articles: palm-oil, palm-wine, palm-sugar, palm-flour, palm-butter, palm-honey, and a peculiar vegetable similar to a cabbage, cocoanut-milk and dates. Then there are many varieties of trees with sweet fruits which are delicious and nourishing: golden mangroves, mangustuis, papaias, a delicious and wholesome food, duryan, with the strong, forbidding odor of its outer shell, and the delicious, aromatic contents, bananas—a most valuable food-product—and all the useful plants, such as rice, the most important article of diet for millions of Orientals, the sugar-cane, the egg-plant, the pineapple, the tea-shrub, watermelons, the bread-tree and various others. Nearly everything that grows can be utilized as food, and the sun makes strenuous efforts to prepare the visitor so that he may be served as an edible with all these vegetables, by roasting him in the most inconsiderate manner.

But Peradeniya can supply other wants besides those of a culinary nature. Those who wish to build a house can find light and heavy woods for beams, bamboo-rods for rafters, palm-stems to make a roof, bark and bast for wall-covering and fibre to make rope. The camphor-tree furnishes wood to him who needs a protection against moths; the chincona and the quinine tree are invaluable in cases of fever, and anyone who likes condiments may help himself to vanilla, nutmeg, black and white pepper, cassia-buds and cinnamon. The rubber tree yields valuable material for the tires that the bicyclist and the

The Giant Ficus.

automobilist consi'er indispensable: the Ylang-Ylang plant grows profusely for the ultimate delight of fashionable women the world over. The devout Buddhist scratches his philosophical meditations on paper from the palmyra-palm; the lover of rare fruits may pluck a huge double-nut from the Seychelle cocoa palm, one of the kind for which the Austrian emperor, Rudolph II., once offered 4,000 florins, and the school teacher will find no reason to criticise the quality of the rod supplied in varying degrees of thickness by the silver-bamboo. The seed of the strychnine tree gives a deadly poison to the would-be suicide and if that should not prove effective a cobra that may cross his path will show him most surprising results. The coffee tree alone is in danger of becoming a useless product, if the large variety of cheap and good substitutes that are on the market find increasing favor with the public as they have in recent years.

# THE BOOK OF THE MONTH

## SENATOR BEVERIDGE DESCRIBES THE RUSSIAN AND JAPANESE SOLDIERS

SENATOR BEVERIDGE is rightly entitled to a place of honor in this issue, as the writer of "The Russian Advance," a book which has already become the standard for reference on all subjects connected with the far eastern problem. In 1901 Senator Beveridge made a journey through Manchuria and Japan and the present book which is now being studied in so many households there took form. Describing the men who are now engaged in the Russian-Japanese conflict, he wrote:

"Perhaps the finest specimens of physical manhood personally observed at any place in any country were, on the average, the Russian Cossacks and the Russian common soldiers along the Amur and in Manchuria. They are big men—necks thick, shoulders powerful, chests deep, legs sturdy, great room for play of lung, great stomach capacity, heavy-skulled, ruddy-countenanced. Their physical vigor instantly attracts your attention. And there is an impression of hardness about them—iron men, steel men, granite men.

"Day after day you note that their food is principally sour cabbage, soup, black bread, dried fish and weak tea. You have discovered two elements upon which you will find, if you will converse with educated Russians, the Russian military theorist largely counts in any conflict which hereafter may occur with any nation—physical hardiness and endurance on the one hand, and little and simple food, easily transported, on the other hand."

* * *

"The Russian soldier goes into battle with the little metal cross next to his very heart," continues Senator Beveridge. "The sincerity of belief in the Russian soldier is incomprehensible. He goes into battle believing not only that he is obeying his commander, not only that he is serving the czar, but that he is fighting in the cause of Heaven itself, and that when he falls he will go to the sure rewards of a loving Father, in whose service he laid down his earthly life."

Concerning resourceful Russia, the author says:

"Over 800,000 young men reach military age every year in Russia, and the government is able to avail itself of scarcely more than 200,000 of these for active service."

Mr. Beveridge emphasizes the endurance of the Russian military man by saying that he had seen Russians go two days without food and without complaining. And an officer of the Russians states that the soldiers can live in any part of the world, and that is something no other soldier in the world can do, not even the Japanese.

"So we see that Russia's human instrument of war with Japan—to-wit, the Russian common soldier—is an elementally vital creature, with knotted muscles and strong legs, and heavy breast, and dog-like obedience, and childish faith in his military 'fathers' (his officers), a religious feeling so profound that it has no questioning, an adoration of God and faith in his sincere if crude conception of the Word woven into the texture and substance of his being.

"Other nations may have storehouses of coal and fleets and heavy armaments, but there is no nation of modern times that has such a magazine of human vitality to draw upon as has Russia of today. The universal feeling in the far East is that if Japan ever meant to go to war with Russia she should have struck her antagonist four years ago."

* * *

An earnest friend of Japan in Shanghai said with much fear in his heart: "I fear that now it is too late."

But now a little on Japan's preparations and her soldiers:

"First of all, they are little men. In weight and strength and all the elements of physical preponderance, the Russian might almost be said to be the equal of two Japanese.

"An idea of the repartee of a Japanese officer, who, being twitted of this fact, laughingly replied, 'The little man can shoot as straight as a big man, and the big man affords a better target.'

"The Japanese have made a name for themselves along all lines where courage and bravery are required; even the Russians admit it willingly. You hear praise of Japanese gallantry sounded high and loud, even by their worst enemies."

The writer continues: "Far and away, the best dressed, best groomed, best appearing soldiers observed in Peking and Tien-Tsin and on the route between, in 1901, were the Japanese soldiers (and the crack soldiers of all the world were there.)"

* * *

The policing of quarters is specially commented upon:

"You might search for days to hear a story of Japanese brawling, and not be rewarded, while fights with fist and even knives between other soldiers were daily occurrences.

"The Japanese army, regiment, company is built like a watch, and each soldier is a part of this machine, like a screw or spring or disk, with this exception—every soldier is capable of being transformed into another part of this complex yet simple mechanism.

"The Japanese soldiery are hardy fellows, but their intelligence is apparently not of a high order, as may be noticed in their physiognomy or cranial development. Suggestions of the bull terrier seem to hang about them.

"Of one company, for example, over two-thirds had the heavy jaw, broad at the jowls and protruding, that you associate with the pugilist or the bull dog.

"It is not thought that the Japanese have the endurance of their Russian antagonists. For one thing they are fed more than the Russian soldiers are fed. Inspection of their rations for each meal was a source of surprise, for it appeared that they eat almost as much as the American soldier, though, of course, not so heavy or nutritious food. But their food is better and of greater quantity than the food of the Russian soldier. For this reason, Russian officers assert, that the Japanese soldiers are not so efficient in the stress of bitter campaigns."

"The Japanese soldier goes into battle burning with the thought of dying in the service of the good mikado, dying for the glory of the flag of the crimson sun," the author says.

"The Japanese have a method of desultory firing, mingled with piping bayonets that seems to have an awful terror connected with it as they charge with their wild shrieks and yells upon the foe."

# MARK HANNA: BUSINESS POLITICIAN

## A MAN WHO DID MUCH TO ADAPT BUSINESS

### KNOWLEDGE AND METHODS TO POLITICAL EFFORT

SHREWD, blunt and frank, Marcus Alonzo Hanna was peculiarly a type of the modern politician. Wherever he went he carried in his sometimes brusque business ways a smile for everybody. The personification of loyalty to his friends, he was frequently led by this good trait into the support and defense of members of his political machine who were unworthy. It was this, which more than anything else, made him open to the attack of his enemies and tarnished an otherwise unsullied reputation. His work in behalf of honest money, in behalf of the Panama Canal and in behalf of a better understanding between labor and capital will give a better understanding of his character than to follow too closely the details of a National political campaign.

Mr. Hanna was born in Lisbon, Ohio. The boyhood home still stands upon an elevation in that little town of 3,000 or 4,000 inhabitants, a plain cottage with its windows of twelve panes each and its old-fashioned shutters. Some two miles distant is the home of Clement Laird Vallandigham, who led the Democracy in Ohio in 1863. Eleven years before the strenuous campaign of Vallandigham, the Hannas moved to Cleveland. On the outskirts of Lisbon is the farm upon which the grandfather of President McKinley lived, and nearby the iron furnace built in 1803 and said to be the first furnace of the kind in the state. At this furnace the grandfather of President McKinley manufactured stoves, and here the boy Hanna received some of his first impressions of the iron industry in which he has since been so much interested. As a young man, Mark Hanna clerked in a store at Lisbon, which is still standing.

President McKinley, as a young man, paid several visits to the old home of his grandfather in Lisbon, and is remembered as having taken a deep interest in the old iron furnace on the banks of the Little Beaver River. Little did he know then that from that nearby humble cottage there had come forth his bosom friend in after life and the most famous politician of his time.

Last June Senator Hanna paid a visit to his boyhood home, delivered an address and enjoyed the old and countryfied scenery. It was on the occasion of the centennial anniversary of the town, and the dates of the celebration had been especially arranged so that Senator Hanna could be on hand.

Mr. Hanna was still quite a young man when, on the death of his father, he was called to represent the interests of the family in the wholesale grocery firm of Hanna, Garretson & Co. The house had a large trade with Lake Superior, which was partially carried on in its own steamers. That was the beginning of his long and extensive association with Lake Superior interests. Soon after joining the firm which his father had assisted in founding, Mr. Hanna married a daughter of the late Daniel P. Rhodes, one of the most extensive coal owners in Ohio. Leaving the wholesale grocery firm, he connected himself with the coal firm of Rhodes & Card. Subsequently this became Rhodes & Co., and eventually M. A. Hanna & Co., which is its present title. The coal business of the firm, which was large when Hanna entered it as a young man, increased enormously and other interests were added by him. Out of the coal business with Lake Superior grew his connection with iron mining in that region and the building of several lines of freight steamers on the lakes. He has been president of the Chapin Mining Company and has been connected with other large mining enterprises.

*By Courtesy of Leslie's Weekly.*

The late Marcus A. Hanna.

There were a number of banks in Cleveland in which he was a director. There were smaller commercial and industrial enterprises among his vast resources, and finally there was the street railway which was his particular pride, and the management of which he was latest in relinquishing to others.

The latest and best thought of Mr. Hanna was directed in two particular channels, the Panama Canal and the cultivation of a better feeling between labor and capital. He thus easily became a leading spirit in the Civic Federation. Concerning the latter he wrote for the National Magazine shortly before his death:

"Every man is vulnerable in some part, and it is a rare thing to find any man proof against methods of kindness and justice. Labor organizations may be open to sharp criticism at times, but it cannot be fairly stated that they are always wrong. If every man is treated as a man, and an appeal made to his heart, as well as to his reason, it will establish a bond of confidence as a sure foundation to build upon. We have, perhaps, been too busy and too engrossed in our rapid expansion to look upon the ethical side of this question, and forgot that two factors contributed to the prosperity of our nation—the man who works with his hands, and the man who works with his head: partners in toil who ought to be partners also in the profits of that toil.

"I wish I could impress upon every American the individual responsibility that rests upon each one of us. Every year of experience, every dollar of accumulated capital, every talent we possess should be regarded as a sacred charge for the good of the nation, to help in uniting the interests of rich and poor, learned and unlearned."

It was this attitude of fairness which won Mr. Hanna hosts of friends. Those who had feared him as a capitalist at first learned to trust him.

Mr. Hanna did not live to see the Panama treaty ratified nor did he live to realize much of the fruits of his labor in the Civic Federation, but there can be no doubt that his own life example as an employer of thousands of contented employees in many lines of industry will have an even greater influence than his words. His life was cut short by typhoid infection in Columbus, Ohio, another lesson to those municipalities which fail to protect either their own people or the guests they are proud to entertain.

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THE TIME IS RIPE for another general discussion of the tariff question. That debate would be on now if the leaders of the dominant party had the courage to open it or if the minority had the sense to force the issue. When the lines are again drawn between those who believe respectively in high and low schedules there will have been a great shifting of forces since 1892. The most notable change will be in the southern states, where high protection was never discussed on its merits but was rejected because it was a sectional and partisan proposition. During the last ten years there have been thousands of southerners who have gone into manufacturing and there have been other thousands from the North who have gone South for residence and for business. They are of the best class of citizens, far superior to the hungry "carpet bag" cormorant who used to sweep down from the North in early post bellum days. These new migrants are people of influence. They have by the mere silent force of their presence made it possible for a man to believe in high protection and still be tolerated in society. With iron mills in Birmingham and cotton mills in Atlanta, many people in those cities are beginning to reflect that if high protection is a good thing for Massachusetts and Pennsylvania it may not be a bad thing for Georgia and Alabama.

On the other hand a counter change is going on in districts which have been impervious to free trade argument. Since the United States has become a world power our people have begun to reach out more earnestly for world trade, and to their chagrin they find they are handicapped by the higher price they have to pay for raw materials. Even the trusts which are supposed to be the direct beneficiaries of our high protection system are beginning to cry out for relief from burdensome taxes on crude products. Some go still further and advocate free trade outright. A prominent officer of the United States Steel Corporation has declared that we no longer need protection. "Granting," said he, "that we may need it on a few special articles, on the bulk of our output we could take care of ourselves if there were no tariffs at all. More than that, the tariff ought to be cut down. We are willing to have ours cut. The United States is fast getting into position where it needs less and less protection. Our best protection, generally speaking, is our ability to produce cheaper than our rivals. On the other hand, what we want is not more tariff, but less—less in our own country and less in the countries where in the very nature of things we shall soon be seeking markets. In a word, the United States is a nation that for a long time has based its economic policy upon fear of imports. Now we have passed that and are a nation that needs an economic policy based upon the hope of exports." It would be strange if England should turn to high protection at the very time that her great world rival in trade rejects it.

THE DEVELOPMENT of the South industrially is not proving an unmitigated blessing to that section. It is working injury in two directions. The cotton mills which have been established there in recent years are employing thousands of children who should be in school and would be there if their parents could resist the temptation to profit by the demand for youthful, inexperienced labor at the modern machines which run almost automatically. The iron works and other mills which require more robust manual labor are producing another evil, inasmuch as they are drawing thousands away from the farms and plantations where they are needed most badly. With cotton worth fifteen cents a pound, almost twice its average price during the last twenty years, the Gulf States have a rare opportunity to repair the fortunes which were so badly shattered in the sixties. It is a happy circumstance that the negro, who was the unfortunate and innocent occasion of loss to his white master, has it now largely within his power to recover that loss and to benefit himself as well. There is negro labor enough to develop the South without the assistance of Italians or Chinamen, the importation of whom some southern papers recommend urgently. These would introduce new troubles, which would aggravate those already besetting that section. The salvation of the southern states commercially is in the hands of the negro race, and the salvation of that race, humanely speaking, is in the hands of the white people. Neither white nor black can injure nor neglect the other without doing injury to itself. In helping each other each race will help itself. Each has the other largely at its mercy. Neither can afford to take advantage of the other's weakness or extremity.

THE PARALYSIS of industry which obtains in many parts of the United States is chargeable to only one general cause and that is the arbitrary demands of labor dictators. We locate the blame distinctly on these dictators for the rank and file of labor are not the offenders. In fact, they suffer most by reason of the unreasonable exactions which are prescribed by their leaders. Not only are hours and wages under regulation, which is proper enough, but the amount of labor which a workman shall perform in a given time is limited by rule. As a result of this it is claimed that not only have wages been greatly increased, but output has been diminished. One contractor avers that the cost of building has been doubled so far as labor is concerned, because a workman is not allowed to do one-half what he would have accomplished ten years ago. Marshall Field, the greatest American merchant, is quoted as

saying: "The chief danger to the great interests of the country lies in the attitude of organized labor. Strikes have been carried to such an extent that no one knows what to figure on. Contracts have been violated, strikes have been ordered on the most flimsy pretexts and rules have been enforced that have caused serious embarrassment to capital. The result of this is already seen in the curtailing of expenses by the great railroad corporations. Improvements that were planned long ago are being abandoned, and the result must be that many men—thousands, I should say—will be thrown out of employment. Another menace is to our export trade. It follows that if you force wages beyond a certain point and shorten hours at the same time, you run the risk of increasing the cost of production to a point where you cannot compete in the markets of the world. I hope and believe that we will escape misfortune, and be able to continue as we have, but I must repeat that the time has come for the exercise of the greatest conservatism. Labor leaders should recognize this as well as business men, and call a halt to indiscriminate disturbances. If they will do this they will be acting not only for their own best interests but for those of the general public as well."

RUSSIA has had to bear a lot of criticism at the tongue and pen of Americans in recent months. Perhaps it is mostly deserved, but attacks upon Russia for her attitude toward other races ought for the sake of consistency to be made sparingly by people of these United States. We ourselves have much to repent of and much to cause us shame. Our relations with the Indian, the native American, have not always been honorable. The African has fared even worse. The Chinese have been denied entrance altogether and those already here are treated with little respect. Sometimes they are mobbed and killed. A few years ago several Italians were unlawfully pursued and put to death by a mob of Americans in New Orleans. We denied redress to Italy on the despicable plea that Louisiana was a sovereign state and that the United States government could not compel her to execute her own laws. Would that puerile excuse be accepted from Mexico if a dozen citizens of the United States were massacred in one of her petty states? Russia has much to answer for, perhaps not more than we.

THE SUBMARINE CABLE lately laid across the floor of the Pacific Ocean marks a significant event for two reasons. First, it celebrates in a signal manner the extension of the American Empire and American trade. The messages which were flashed around the globe between President Roosevelt and Mr. Mackay traveled more than half way over American wires. Second, this event is a reminder that the far ends of the world are fast being drawn together by lines of swift communication. These commercial wires are already so interlaced over land and under seas that they resemble an intricate nervous system by which news can be flashed from center to center with the swiftness of thought. Shakespeare was allowed poetic license when he made Puck say to Oberon, "I'll put a girdle around the earth in forty minutes." But that time seems slow now that the earth can be girdled in nine and a half minutes by an electric message. Indeed, if it were not for the transfers from American to foreign lines the circuit could be made in as many seconds as it now takes minutes.

## NATURE STUDY IN SCHOOLS

WITH the approach of spring teachers in the public schools and parents are considering in what way they can, at least expense, give simple and helpful instruction in nature studies. The value of such instruction in awakening young minds and sharpening their observing faculties is everywhere becoming more and more recognized. Especially is this true in the great cities where hundreds of thousands of children are growing up without the slightest knowledge of nature such as is the common heritage of every farmer's son or daughter. In view of this the following words uttered by Gustave Straubenmuller, district superintendent of schools in New York city, are timely. Speaking on "Nature Study in the Curriculum" at New York University, he said:

"Let one pupil plant grass seed on wet cotton and another flaxseed on a damp sponge. Dig out the inside of a sweet potato, fill it with water and watch it throw out tendrils. Or place a sweet potato in a tumbler of water, and note how the delicate creepers and spraylets make out. Then take a common white potato and plant in it a bean or an onion, and see what happens. Grow some vegetables in the cellar and more of the same kind in the light, for your boys and girls to notice the difference.

"A capital plan is to plant a number of boxes with—oh, any kind of seed; it doesn't matter what—marking the spot and the date of planting of each seed. Fill one box with sand, another with loam and another with clay. Place one in a warm place, another in a cool place, one in the sun, another in the shade, one in the dark; keep one wet, another dry.

"One fact discovered by a pupil for himself is worth a thousand times more than if it were told to him by the teacher. Don't destroy the pleasure a child derives from the facts that are revealed to him by his own powers.

"There is nothing better than to have competitive flower raising. 'But we have no gardens,' you say. You don't need gardens. 'Can it be done?' you ask. It has been done. One principal last year gave away one thousand pots with the seeds. It is done, you see. For competitive flower raising the plants should be selected with consideration to their adaptability to pot growing, those that will bloom in from thirty to seventy days after the seeds are planted being the most desirable.

"When you begin the study of trees, if there is a park near you, have the children make maps of it and study the trees that you find in it. If no park is available, take isolated trees and set each child to observe what takes place in some particular tree. Collect spiders, flies and mice—these are plentiful and easily secured. The migration, nesting and brooding of birds cannot well be observed by city school children, but the forces of nature, as represented by the heat and light of the sun, by the moon and stars, are as near the city boy as the country boy, if the horizon is not so large.

"A teacher doesn't have to be an expert botanist or zoologist in order to teach nature study. A very poor teacher of nature is better than none, for she will keep before the child the idea that nature exists. It is better to have a few errors than that stolid indifference, which is the fruit of the present system. A teacher should not hesitate to teach because of her lack of knowledge; a little knowledge, a little insight, with sympathy, are all that is necessary.

"Your object with the littlest ones should be the development of the child, rather than the subject—the arousing within him of sympathy for life, not the imparting of scientific knowledge. Nature study is nothing but the old object lesson, with a living, growing subject to study, instead of a dead one. Children are most interested in animal life, next in plant life, and in both more than in minerals. So lay your emphasis first on animals, selecting those which are nearest the child's own experience."

# SNAPSHOTS AT NOTABLES

### A JOKE ON THE COMMUNITY

IN his recent address at New Haven on "The Value of an Ideal," William J. Bryan told a good story on himself while discussing his own life, says a writer in the New York Times.

"It was not one of my early ideals to be a statesman," said he. "I got into politics by accident, and stayed there by design. My going to Congress was the result of a joke I played on a classmate in college. This joke made us better acquainted, and we became chums, and it was on this friend's advice that I settled in Nebraska, where I was elected to Congress.

"Once I remarked in a political speech that I considered my going to Congress the result of a joke I played on a college classmate, and a member of the opposition jumped up and shouted: 'Well, well! I always thought it was the result of a joke you played on the entire community.'"

### WILL CARLETON'S FIRST POEM

WHEN Will Carleton, author of "Farm Ballads," was a raw student at college, he wrote and recited in public his first campaign poem; and this is the story of how he managed to do it. There was a political fight in progress at the town in Illinois where the youthful poet lived, and he aspired to do what he could—not being old enough to vote at that time—to aid the side he favored. So he got a boat and rowed himself to a solitary island, where after considerable thought and work, he wrote a long campaign poem, full of patriotism and ardor. Then, with his MS. in his hand, he approached the chairman of the local committee, and offered his services, in the form of an original poem to be recited by himself. The chairman was not visibly impressed by the offer, but the young man though somewhat discomfited, was not discouraged, and after further parley was permitted to read his poem to the politician, who liked it.

It was arranged that young Carleton should appear in a small Lutheran church the next night in order to show the people what he could do. Highly elated, the youthful but practical poet went to a wall-paper shop, bought a roll or two of the cheapest paper, and using the white side of it, he prepared some striking posters advertising his appearance the following night. He spent the intervening time practicing his recitation, and when the hour arrived, he was ready. There were only fifteen or twenty people present, but they were pleased, and the fame of the poet filled the town next day. The subsequent night the Methodist church was placed at his disposal, a large audience was gathered by the politicians, and a collection was taken up for the enterprising young man who had so ably entertained them.

### DR. COLLYER AND CHURCH SLEEPERS

PEW sleepers are one of the bugbears of preachers," said Rev. Dr. Robert Collyer, the veteran New Yorker recently. "I can speak feelingly from experience. On one occasion when Henry Ward Beecher asked me to go to Plymouth church to talk to his people, he remarked—jokingly, let us hope—that most of them were hardworking folk who needed plenty of rest on Sunday, and he felt that a sermon from me might be gratefully received.

"In the course of my talk I mentioned this and said that it was, however, a matter upon which my feelings could not be hurt, and that I owed this imperviousness to Mr. Beecher himself. I told them that one Sunday, years before, when I was attending a service at old Plymouth, as Mr. Beecher was thundering forth, I saw one of his deacons asleep in a front pew.

"I went on to say that always after this whenever I saw a man slumbering peacefully through my most stirring efforts in the pulpit I would say to myself, 'Well, let him sleep; even the great Beecher can't keep 'em all awake.'"

### A FAMOUS KENTUCKY CAMPAIGN

JAMES B. McCREARY, the junior senator from Kentucky, has a great fondness for Justice John M. Harlan of the United States supreme court, who is also a Kentuckian, says the editor of the National Magazine. Away back in 1879, Senator McCreary and Justice Harlan were opponents in a campaign for the governorship of that state. Mr. McCreary was the nominee of the democrats and Mr. Harlan the republican standard-bearer. There was an exchange of challenges for a joint debate and each wired his acceptance. They engaged in over sixty joint debates, and while the argument was frequently fast and furious and sometimes of a personal nature, the principals in the contest slept, ate and traveled together, and off the platform they were fast friends.

"When we would retire at night in the same bed," said Senator McCreary in talking of the campaign, "Harlan never failed to say: 'McCreary, there is one thing certain—this bed holds the next governor of Kentucky.' The last night before the campaign found us in a country not touched by a railroad. We had spoken and had gone to a farm-house to spend the night. The bed in the room to which we were assigned was high and old-fashioned. We rolled in, and Harlan as usual said, 'Well, McCreary, one thing is certain—the next governor of Kentucky is in this bed.'

"Suddenly the slats on Harlan's side gave way, and the present justice fell on the floor in a heap and rolled into the middle of the room and I was left in the bed; and I said: 'Yes, I think this bed holds the next governor of Kentucky.'

"The next day I was elected by an overwhelming majority, and every time I see Justice Harlan I tell him that I have never been able to understand how that bed knew what the voice of the people would be."

### GOT AHEAD OF RUSSELL SAGE

ONE of the few men who have ever managed to get ahead of Russell Sage in a business transaction is a young curb broker named Tucker, and he did so more by accident than design. The New York Mail and Express tells us how it happened:

Tucker had ten shares of gas stock he was trying hard to dispose of, with no result. Finally, one of his acquaintances, in a spirit of fun, said to him: "Say, old man, I understand that Sage wants that stock bad, and is willing to pay 95 for it."

At that time the stock was selling for 91, when it sold at all, so naturally Tucker, who was a newcomer on the curb, started off post-haste for Mr. Sage's office, and half an hour later offered his shares in person at 95.

"Don't want it young man," was the financier's reply. "I can go out and buy all I want at 91."

Then, as he realized that he had been "taken in," an idea struck Tucker. "Mr. Sage," he said, "since you don't want to buy my stock, maybe you'd like to sell me any of the same stock you may own at 93."

"Eh, what?" queried Mr. Sage. "Ninety-three?" He pondered for a moment. Then, "I'll take your ten shares at 95," he said. And the sale was made.

A little later on, when Mr. Sage found that he really could have bought all the stock he wanted at 91, his feelings were anything but friendly toward Mr. Tucker. The next day, however, he was in a different frame of mind. "Any man," he said, "who can take care of himself like that is useful, and I want Mr. Tucker to watch out for any business I may have on the curb."

And that is what Mr. Tucker is doing today.

# LABOR ARBITRATION IN NEW ZEALAND

## LATEST LEGISLATION ON THE SUBJECT IN THIS EXPERIMENTAL WORKSHOP

### AS REVIEWED AND EXPLAINED BY THE PREMIER

By RT. HON. RICHARD JOHN SEDDON

The Premier of New Zealand who contributes the article which follows to The New York Independent has had a remarkable career since his arrival in Victoria in 1863. He is an ultra-democrat and a true champion of the workingman. Since 1893 he has been the head of the Liberal party in New Zealand, and his personality has been a powerful influence in the achievements with which New Zealand today challenges the attention of the world. OUR DAY has contained more or less complete reports of these achievements in previous years, but none of them will perhaps prove as interesting as a description of the latest labor legislation from the premier direct.

IT has been the lot of New Zealand to serve as an experimental workshop, in which fresh ideas have been given outward shape and new models tested in the direction of economic legislation. Resumption of Landed Estates by the Crown, Old Age Pensions, Advances of Cheap Money to Farmers, Graduated Land and Income Tax, Conciliation and Arbitration in Industrial Affairs, Compensation to Workmen for Accidents, Government Insurance for Life, Accident and Fire, State Coal Mines, State Railways, and many other schemes called "visionary" elsewhere, are in this colony in full and successful action.

In America the greatest interest has centered in the (so-called) "Compulsory Arbitration Act," and while it has found in the States many warm friends it has aroused a host of enemies. These latter persons are, I think, under misapprehension, both as to the effects of the Act on "liberty" and on the industries to which its provisions are applied. I shall not, however, go over the ground with arguments which are becoming hackneyed, nor endeavor to persuade people to adopt measures for their own advantage. I merely wish to present my views of some amended legislation affecting Industrial Arbitration passed in the Parliamentary Session just concluded.

It was found necessary to pass a short Emergency Act enabling the election of deputies for members of the Arbitration Court unable, through illness or other cause, to perform their duties. This was a mere machinery measure and needs no comment. The main amending Act introduced some important changes. The law had hitherto been that awards of the court, Industrial Agreements, etc., were confined to the industrial district in which they were issued, but it was discovered that friction arose through unequal competition. An employer, bound by an award to pay certain high wages to his workpeople, found his business invaded by agents of a firm located in another industrial district in which there was no award for that particular trade, and he suffered in consequence.

The amending Act gives power to the Court to extend its award outside one industrial district to another if goods are used in inter-district competition. The next important section relates to combinations of employers or workers for the purpose of strikes or lockouts. There was no direct provision in the original Act to penalize strikes or lockouts if they did not take place while the case was under consideration by the Conciliation Board or Arbitration Court. It was, however, held by the President of the Court that, the spirit of the Act being to prevent strikes and lockouts, he had power (under a section which enables him to pronounce what is or is not a breach of award) to punish any combination for that purpose. This was safe enough ground while the Supreme Court Judge, at that time President of the Arbitration Court, remained in office (he has since retired), but it was thought desirable to make the position plain in the letter as well as in the spirit of the Act. Therefore, a clause was passed which made any combination or agreement to defeat an award a breach of award—and this relates to individual workers or employers as well as to unions or associations.

Such a measure, at first sight, appears drastic, but it in no way interferes with the industrial liberty of the subject. An employer can discharge his man or a worker leave his master's service if either has the wish to do so. What is provided by the Act is that a certain action which may be innocuous as performed by the individual is to be considered illegal when agreement is made thereon by a number of persons.

Following this appears a section which prevents any worker being discharged merely on account of his (or her) belonging to a trade union or being entitled to the benefit of an award. An employer is perfectly at liberty to discharge because he has not business enough or because he has some cause to dislike the worker, but not for unionist or award benefit reasons.

I should like to emphasize the absolute necessity of continual amendments in industrial legislation. It appears to me that there can be neither fixity nor finality in any law dealing with a thing so variable and fluid as production and distribution. The beneficial rule of today may be the oppressive yoke of tomorrow, and it is necessary to be ever alert to perceive and anticipate the direction in which economic pressure will be directed.

At present the most useful effort appears to be in the exercise of a just discrimination between benignant and malignant combinations. With one hand we have to nourish those organizations of employers and of workers which allow industrial subjects to be grasped in a large and comprehensive manner; with the other we have to strike discouraging blows at combinations which are little better than bodies of conspirators banded to defeat the law and destroy the orderly arrangements of society. It may be difficult to discriminate, and to divide the just from the unjust, but we can at least distinguish between those whose work makes for peace and those who openly defy the law, recognizing no welfare but their own.

It may be that we New Zealanders, whose light skiff is anchored out in the distant ocean far away from the roaring tides which pour through the centers of the world's commerce, may be able to feel the first blow and influence of currents of tendency which have not yet developed power to reach the industrial markets of the United States. Believing that to be the case, I have here endeavored to send you word of the direction in which the bow of our skiff is pointing, in order that you may be aware of the tendency and prepare for the force behind it.

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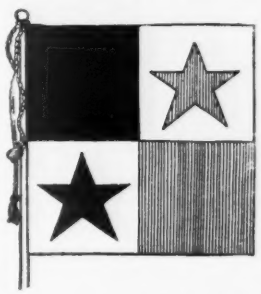
THE FLAG OF PANAMA



The first upper square, to the left, is blue. The first lower square, to the left, is white, with a blue star in the center. The second upper square is white, with a red star in its center, and the second lower square is red.

# RADIUM AS A CURATIVE

## IMPORTANT RESULTS WHICH HAVE BEEN ACHIEVED IN THE USE OF RADIUM FOR MEDICAL PURPOSES

*Translated for Our Day from Illustrirte Zeitung*

THE radiations of radium-salts have been known to exert a positive influence on tissues of the skin, and though investigations regarding the qualities of radium have not been concluded, the use of its rays for the cure of lupus, of cancerous or other abscesses, of cancer, the disappearance of the visual nerve, and of various skin-diseases, points a new and hopeful path to practitioners. It is a well-known fact that X-rays do not affect cancer, but radium rays, being much stronger and consequently possessing greater penetrating power, seem destined to become an efficient remedy for diseases hitherto considered incurable. Very little has been published thus far about radium as a curative, therefore, a few cases may be cited here to show that its rays often work like a miracle.

Dr. John MacIntire in Glasgow reports the following three cures: A case of lupus on the right hand was treated with radium rays from ten to twenty minutes each day—the time varying according to the reaction of the skin—and a perfect cure resulted after three weeks.

A woman twenty-eight years old, with lupus spots about one inch in diameter on her nose, was cured in four weeks by the same treatment. A cankerous ulcer was dried by radium rays in two weeks, thus assuring a perfect cure.

Dr. Oudin in Paris reported to the Medical Academy several cases of lupus which he cured by this method, but he gives no particulars.

Professor Gussenbauer, recently deceased, had treated no less than twenty cancer cases with radium rays up to July, 1903. Two cases were cured and all the others showed marked improvement. A man thirty-seven years old, who had been operated upon for a tumor on his arm at the age of eight, came back to the clinic because the old sore had reappeared. The numerous little nodules in the skin were exposed to the rays daily for twenty-five minutes, and only once every two days when the reaction of the skin became stronger, and all the cankerous nodules disappeared in the course of a month.

The second cure was effected after a man of sixty-four had been operated upon for cancer of the mouth in 1888, 1891 and 1897, only to return as a patient in April, 1903. This time the cancer of the lips and of the palate was past the operating stage, but radium cured the man completely in five weeks.

Dr. Willy Meyer and William J. Hammer of New York report the case of a frequently reappearing cancer, that showed no sign of improvement after being treated with X-rays and Coley fluid for a year; but when Dr. Meyer applied the radium rays for one minute each day, he succeeding in healing the newer growths, while the older ones were too advanced to be completely cured.

Dr. Andrew H. Smith of New York cured a cankerous growth by five applications of radium-rays.

The bacteriological experiments with radium have been confined within narrow limits up to the present time, yet two Italians, Caspari and Ashkassi, have found that Micrococcus Prodigiosus germs are killed by exposing them to the rays for three hours.

As soon as this germ-destroying power becomes an accepted fact, we shall probably be justified in considering it an effective tuberculosis remedy. In the "British Medical Journal" Soddy takes the initiative by suggesting that radium be dissolved in water, which may change the radiations into a gaseous vapor that will mingle with the surrounding air. Then the mixture might be propelled into a recipient by an air current. The practical test of this suggestion gave Soddy the following results: One-half of the radiating power of the mixture in the recipient vanished during the first four days and none of it remained after three weeks. But the original solution regained its potency within the stated time and was able to emit the same radiating power. When inhaled, these light-radiations produce a thin layer of radio-active substance on the lungs, and this causes what we may call "inductive radio-activity" in the air-cells. It kills the germs in the diseased tissues.

This inductive radiating capacity usually lasts about three hours. A common bottle, the same that is used to wash out the gases, should be provided with two bung-holes and used as an inhaling apparatus, so as to avoid wasting the valuable rays. Five to ten mg. of dry radium bromide is placed into this bottle, a few drops of water are added, and the bottle is closed as quickly as possible. A small dose of the gases that first escape is to be inhaled in one breath the first time, and an increasingly larger dose each succeeding day.

The cases cited above may give rise to exaggerated expectations, and we must not regard radium as an infallible remedy for all incurable diseases. Yet time may bring conviction. This wondrous substance is many-sided in its possibilities. Its discovery may lead to a revolution in our theories regarding matter and the conservation of energy; it may show us how to obtain a cheaper and more healthful light by employing phosphorescence; radium enables us to distinguish genuine precious stones from imitations; it kills germs, and we may certainly regard it as an important curative factor in the treatment of lupus, cancer and tuberculosis.

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### A GRAPHIC ARGUMENT FOR THE PANAMA CANAL

In a general way our readers are familiar with the advantages which will accrue to commerce by means of the Panama Canal. But here is a vivid illustration in black and white which appears in the current issue of the Booklovers' Magazine, which shows almost at a glance the saving in distances to various parts of the world:

# IN THE LIME LIGHT

## ADMIRAL URIU AS A STUDENT

THE victories achieved by Japan on the sea are to be attributed in great part to the training which her leaders received in the United States. Thirty-six years ago Japan appealed to this country to admit representative young men to the naval academy in Annapolis. An act was accordingly passed by Congress and signed by President Johnson. One of the earliest to take advantage of the opportunity was Solo-Kichi Uriu, an admiral in the Japanese Navy at the present time who has won much distinction. Uriu, who comes from one of the first families of Japan—one in closest touch with the emperor, was sent to the academy in 1877. He is described by those who remember him as the most diminutive little Jap yet seen in the college, quite a delicate young fellow, who did not appear to be destined for a long struggle in this world. He was, however, a perfect little lady in his way, the very personification of politeness. His bow was a dream and he had a general charm of manner which endeared him in social circles. With his fellow cadets he was equally a favorite, and delicate though he was he entered freely with them into all their sports. He was not up to the mark in gymnastics attained by other students from the Flowery Kingdom, but on the track he proved himself quite a sprinter. None of them, however, was a match either in the gymnasium or on the field for the Americans save when it came to some game peculiar to their own country. In the fencing school, however, Uriu, like the rest of them, was master.

Uriu was a very close student, and gave every satisfaction to his teachers in all the subjects of the course. He was one of the ablest fellows in the school of gunnery, and learned everything there was to be learned, and in seamanship was the equal of anybody of his time. He was a sound mathematician, showing especial cleverness in the calculus and higher mathematics, and also in physics. In spite of the handicap of a foreign tongue he stood twenty-sixth in a class of seventy-six.

He took only the regular four year course, and on reaching the homeland was immediately sent to Toyama Bay, on the west coast of the island kingdom, where he took charge of the Naval Academy at Hakodate. Under his sway the academy grew in influence rapidly, and when a few years ago he became vice-minister of the admiralty, he saw to it that it was thoroughly equipped in accordance with modern advancement, until it rivalled even his American alma mater. Uriu's rise has been exceptionally rapid when, as Lieutenant Commander Poyer put it, one considers how far away yet from his American classmates are an admiral's stars. The best thing about him is that he is a Christian commander and a strong influence for good among the men of his fleet.

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## RUSSIA'S MILITARY IDOL

THE man who is distinctively in the world's eye at the present time is General Alexei Nicholaevitch Kouropatkin. General Kouropatkin has been appointed commander-in-chief of the Russian army in the East and was previously minister of war since 1897. He is a man with a remarkable military record, having fought in the Pamirs, in Turkestan, in Africa, and in the war with Turkey, distinguishing himself especially at Plevna, where he was chief of staff under the renowned Skobeleff. He is now fifty-five years of age, and comes of a noble family. At Paris, in 1874, he won the badge of Legion of Honor for assisting in reorganizing the French cavalry, being the first Russian officer to gain the prize. Then he engaged in the campaign in Turkestan, wrote a book about his adventures, and was accorded the gold medal of the Geographical Society. Kouropatkin entered the Turkish war as a lieutenant and emerged a colonel, and from that time his advancement has been rapid. He is the man who engineered the usurpation of Finland, and he has been a prominent figure in promoting the Trans-Siberian Road. He is credited with being a master of the science of war, and his history of the Balkan campaigns is considered to be a military classic.

Many interesting stories are told of General Kouropatkin, some of which cast as much discredit on him for his harshness and cruelty as for his almost matchless ability as a leader of men. According to The New York Sun, he was trained in a harder school than most modern generals, and went through enough perils to satisfy the biggest glutton for adventure. After one of the bloody fights in the Shipka pass he was left for dead upon the field. All night he lay there, sorely wounded and unconscious. It was in bitter cold of a Balkan night, and he might have frozen to death had he not been almost entirely covered by the body of a dying Turk, who had fallen across him after he sank to the ground with the agony of his wound. In the morning Kouropatkin recovered consciousness, crawled from underneath the Turk, and made his way slowly and painfully to the Russian camp, where his comrades received him as if he were a ghost. Kouropatkin became the hero of the Russian army, second only to his great leader, Skobeleff, by his bravery and fine generalship at the capture of Geok Tepe in 1882.

Geok Tepe, the great stronghold of the Turcomans, was carried by assault after a month's siege. The brunt of the attack fell on Kouropatkin, who commanded a body of light troops from Turkestan. It was a great victory, but it sullied the reputation of both the Russian leaders. They ordered their troops to give no quarter to the Turcomans of either sex, and all the horrors usual when such orders are given were perpetrated. Spectators say that even when the Turcomans fled in a disorderly mob across the desert, men, women and children mingled together, no mercy was shown to them. Artillery and cavalry followed in their rear and mowed them down until darkness put an end to the pursuit. In that few hours' chase 1,000 pursuing Russians slaughtered 8,000 fugitives, while over 6,000 were massacred in the fortified camp of Geok Tepe.

This is the single great blot on General Kouropatkin's record. It is true that he was not in supreme command, but his Turkestan troops played the leading part in the slaughter. He is a great leader of men. The march of his Turkestan contingent across the almost unknown deserts of central Asia, in order to join Skobeleff for the siege of Geok Tepe, was as fine an achievement as Lord Roberts' famous march to Candahar.

With the possible exception of General Dragomiroff, formerly Governor General of Kieff, General Kouropatkin is the most popular man in the Russian army. As a bluff old soldier who has fought his way up from the bottom to be Minister of War, he is the ideal of the enlisted men. Not one in the Czar's army has seen more fighting, and no one can tell a story better. There is never a dull moment in his company, for he intermingles the humorous incidents of his campaigns with tales of the self-sacrifice of the men whom he led with Skobeloff over the parched wastes of Geok-Tepe, or over the icy slopes of Plevna. As Minister of War, he was considered a just chief, who gave rewards and administered punishments, without fear or

favor. It is small wonder, therefore, that the Russian army adores him.

### DR. VAN DYKE A LOVER OF NATURE

THE Rev. Dr. Henry van Dyke is one of those sane, healthy individuals who owes a great deal to his love of outdoor life. Isabel Gordon Curtis recently interviewed him in his Princeton home. She found him in a splendid pillared house in yellow and white, built long before Revolutionary days and standing high on a green terrace across the road from his neighbor, Grover Cleveland.

"I do a large part of my work in summer, the work of putting together material which has collected during the winter; then I am off for the woods and the real vacation," he is reported as saying in Good Housekeeping. "Sometimes my oldest boy goes along; occasionally my wife or my daughter; they are as much at home in the wilderness as I am. In June I go fishing; in the fall, hunting. I began years ago exploring the Adirondacks, then the Maritime provinces, afterwards Maine and Canada. I love best of all the Canadian wilderness; it is almost limitless, and unbroken between the north shore of the St Lawrence and Hudson Bay. The people one finds in the woods are very interesting. The hunters and trappers are friendly companions for weeks at a time: it is a great rest after civilization.

"In the wilderness, humanity is not overlaid with conventionalities, life is very simple, very genuine. Human passions can be studied there and appreciated at their real value. Civilized life is smothered with trimmings. Trimmings may be interesting, but of less significance than real life. A man can be very happy in the wilderness if he loves it. All he needs is a strip of canvas, a rubber coat, a side of bacon, a tin of biscuit, a can of coffee, and a pipe. Add to this all the good things provided by the rod and the rifle and one can live like a king. Do not forget, however, a knowledge of cooking. The man alone in the woods who does not know how to cook is a helpless animal.

"Nothing in the wilderness life is so wonderful as the intelligence of a guide. He leads you through trackless forest, perfectly innocent of a trail, yet always you arrive at the desired destination. It seems to me as if these silent men of the woods carried an invisible map of the wilderness in their minds. There is something a lover of the wilds cannot express, when he plunges each summer into the big woods. In renewing his sense of fellowship with nature he acquires fresh power for his intercourse with men. Man of course is more than nature; but one side of his being belongs to nature. When he forgets this, life is sure to be narrow, morbid and artificial. The best way to get cobwebs out of the mind is to live outdoors for a while, luxuriating in the wind, the grass, the trees and the sun.

"Sunlight is death to microbes," said the doctor, cheerfully, "especially to microbes of the brain. In comparison with the good it brings, faded carpets are of small account. It astonishes me that people will shut sunshine out of their homes, and open the door to the doctor.

"Another thing they often shut out is the sunshine of good art. The things we live in everyday contact with are the things that influence us, often unconsciously, but strongly. Good pictures enrich life almost as much as good books. A few photographs of great pictures or great sculpture are within the reach of almost everybody. Quality, not quantity, is the important thing in the furnishing of a home. Better a few, a very few, good things, no matter if they are cheap, than a household of the most expensive, trifling, idiotic bric-a-brac."

### TIMIDITY OF THE CZAR

THE most talked about ruler of the world today is undoubtedly the Czar of Russia. By many he is regarded as a bundle of contradictions, at one time suggesting a tribunal for international peace and then engaging in a war which may plunge the world into bloody strife. Mr. Arnold White, who for many years has enjoyed peculiar privileges for studying the Czar, writes of his character thus in the current issue of Everybody's:

"There is no more mysterious figure in Europe than the Czar. His detractors declare him to be a melancholy, uxorious man, surrounded by a wall of detail, dominated by women, and impotent for good or evil.

"His admirers describe him as a man with a great mission for the advancement of the humanitarian idea which is struggling with militarism in every country on the continent of Europe. In personal conversation with the Czar one is struck immediately with the shrinking shyness and softly apprehensive, almost feminine sweetness of the Russian Emperor. The contrast between the melancholy and reflective Czar and the exuberantly vital Kaiser, bubbling and boiling with unexpended life power, can be appreciated only by those who have conversed with both. It must not be supposed that the Czar Nicholas II. is destitute of strength because his habitual outlook on life is rather one of Oriental resignation than of the hopefulness that might be expected from the head of a great Christian nation. The Czar is remarkable for a dignity which is the more noticeable because he is small in size, and his voice is gentle and womanly. The dignity is like the dignity of Queen Victoria, which impressed everyone who entered her presence.

"Timidity in a despot is incongruous, but timidity may be more apparent than real, and may be the result of characteristics derived from an ancestry remarkable for physical courage. The allegation that the Czar is prudent, if not timid, is supported by the fact that he does not excel in manly sports, with the single exception of cycling. He is proficient as a wheelman, and has even been known to 'scorch.' With the exception of cycling, he is not addicted to open-air sports.

"The event in the Czar's life which has chiefly influenced his habit and outlook on life," adds Mr. White, "was his journey to the Far East in 1891. After visiting India, he returned overland via Siberia along the route of the railway that has now been constructed. The long and monotonous journey through Siberia is understood to have stirred the pulse of the Czar, and to have moulded his character and policy to an extent undreamed of by Western critics. The present writer has been informed, by one who accompanied the present Czar on his journey to the Far East, that the spectacle of Russian power in the Far East, the possibilities of its development, and the extraordinary agricultural and industrial future that awaits the development of the rich and virgin soil of Siberia, produced an overwhelming effect upon his mind.

"In the course of that long journey he visited India, China, Japan, and traversed the whole of Asia by land."

### NOT A SUCCESS IN ENGINEERING

JULIAN HAWTHORNE came into the literary field, as Hopkinson Smith did, from that of engineering. Mr. Hawthorne began life as hydrographic engineer of the New York Dock Department. After eighteen months' work, he was rotated out of office. "My profession is not literature, but engineering," he said recently. "While I was waiting for another job, after leaving the Dock Department, I happened to write a short story, for fun, and sent it to Harper's Weekly. It was accepted, and I got fifty dollars for it. That seemed an easy way of making money during the suspension of my professional activities, and I kept at it, always expecting the new engineering work. That was over thirty years ago, and during the interval I have done a good deal of writing, but have never for a moment ceased to hope for an order for a bridge or a canal. It may come any day; I am young yet, —only fifty-seven,—but I feel that it is not too late to begin serious work again."

# SCIENCE AND INVENTION

## INVENTORS OF THE FUTURE

I WILL begin with what may be reckoned our domestic primaries, or matters which affect us immediately in the familiar circle of home life," says Hudson Maxim, writing in "The Woman's Home Companion" about inventions that ought to be invented. "I refer to inventions which have to do with light, heat and food. Obviously there is scope for an immense revolution. Hundreds of electricians are at this moment striving to construct lamps in which nothing is consumed save the electrical energy applied to them—lamps that have the radiance of the sun and the coldness of the moon. The reason why determined study is thus being prosecuted with respect to illuminants is the need for lamps of longer life and purer light than the arc and incandescent lamps now in vogue. The economy of these is not high enough. They are not really very superior to the best forms of gas, which, for cheapness, still holds its own.

"With regard to the great fuel problem, it is well known that Mr. Edison is concentrating much of his attention on the higher economics of the use of coal. Coal is king today. The immediate task of scientists is to draw from this commodity something like its real value in work, so as to obviate the enormous waste involved in present methods. Mr. Edison declares that a bucketful of coal should drive an express train from New York to Philadelphia, and a few tons be sufficient for the largest ocean steamship, whose bunkers must now hold thousands. The Oceanic consumes a ton of coal every three minutes, or about five hundred tons a day, during her voyage between New York and Liverpool. But a single pound of coal burned under perfect conditions would do as much work as the strongest hod-carrier climbing stairs or ladder with brick and mortar during a weary day of ten hours' working time. At present we waste six-sevenths of the value of coal. Our inventors will know no rest until they have found the furnace, the engine, or the appliance, or whatever it may turn out to be, which will substitute absolute economy for this immense extravagance.

"Both for domestic and for manufacturing purposes engineers and men of science are diligently studying the art of harnessing the direct rays of the sun. They anticipate the time when the world's supplies of coal, petroleum and other combustibles will be practically exhausted. Vast regions of the earth's surface are sunburned to aridity, and everywhere the sun's heat is constantly deluging that surface with stores of latent potential energy which might be made available for the purposes of civilized humanity. Water power and wind power both derive their energy from the sun's rays, and many clever inventions yet unheard of will have for their special object the application of each of these sources of activity. But the defect in each case is the lack of certainty. Wind and tide are variable and intermittent. Therefore, scientists look with great expectations to the perfection of the solar engine, which was produced by Ericsson in an elementary form. Some day there will be discovered a method of gathering and storing the energy of the direct rays of the sun for use in producing a heat motor. But the practical sun engine is still among the 'uninvented inventions.'

"Science will be more and more concerned with problems of food supply. Here the chemist comes into evidence. Scientists predict wonderful results as the ultimate rewards of the research now going on quietly in many a laboratory. The way will be found of growing strawberries as large as fine apples, and raspberries and blackberries will be produced of such dimensions that one will suffice for the fruit course of each person.

"Cranberries, gooseberries and currants will be as large as oranges. One cantaloupe will supply a large family. Melons, cherries, grapes, plums, apples, pears and peaches will be seedless. All varieties of summer fruits will be of such a hardy nature that they will be capable of storage all through the winter, as potatoes now are. Cheap native rubber will be grown, and will be harvested by machinery all over this country. Roses will be as big as cabbages, violets will attain the size of fine orchids, and a heart's-ease will be of the sunflower magnitude. There will be practised the constant transfer of the perfume of any scented flower to another that is naturally inodorous. Plants will be rendered microbe proof. How will all these wonders in culture be achieved? By the discovery of new methods of applying electric agency in glass gardens, so that at one and the same time currents will be passed through the soil to make plants grow faster and larger, and also to exterminate weeds and to destroy bacteria; while plants will be bathed all night in electric light to stimulate their progress. All this will be done, but the way to bring it to pass has yet to be invented.

"This further brings up the question of the supply of nitrogen, that infinitely abundant elementary gas on which agriculture is absolutely dependent. Some way must be devised of restoring to their old fertility the vast worn out fields of the world. The agricultural chemist declares that fixed nitrogen is indispensable for this vital redemption. Now, nitrogen, though everywhere so plentifully diffused, is exceedingly difficult to fix. It forms in bulk and weight three-fourths of the atmosphere, yet it challenges man to bring it into subjection. To catch the elusive and flirtatious floating nitrogen is one of the most cherished objects of present day explorers among nature's secrets. Experiments conducted under the direction of William H. Bauldin, Jr., formerly of Baltimore, seemed to promise a solution of this problem, when a disastrous explosion ended the life of the chief engineer of the works. Thus the question is still in abeyance, but undoubtedly, before the great nitre beds of Chili and Peru are exhausted, some means will have been devised of making nitric acid cheaply from the air.

"One of the dreams of medical men is likely to be realized in the near future. Few drugs will be swallowed or taken into the stomach unless needed for the direct treatment of that organ itself. The methods of administration of healing medicaments will be revolutionized in the days of our great-grandchildren. With the aid of diagnosis by X-rays and by the medium of electric currents drugs will be applied to various organs through the skin and flesh, and the treatment will be painless. It will be as easy with the instruments that are certain to be invented—of which the microscope, the photographic camera and the X-ray apparatus are but the pioneers—for the pathologist, physician and surgeon to see the interior of the body and to explore its recesses as it is now to survey the exterior. Furthermore, food will be made for travelers in the pemmican style known to our North American Indians. All kinds of nutriment will be condensed into tabloids containing in very tiny compass the essentials to sustain life in full vigor for long periods.

"The inventors of the future will revolutionize the culinary department. The kitchen and scullery will no longer be repellent or suggestive of domestic slavery. Drudgery will be a thing of the past for the cook. Electricity will be the cheap handmaid of the dining room, for the electric current will be utilized with small expense, while when the new and miracle working metal called radium, is

better known and possessed in sufficient quantities, agencies for supplying both heat and light will be available, which are as yet unthought of.

"Though the means are as yet undevised, there will be no intermission of research until everybody can see and hear everybody without the slightest regard to intervals of space, no matter how great. The coming age will demand wireless telephone and telegraph circuits which will span the circuit of the globe, so that it will be as easy to telephone from New York to Peking as from New York to Brooklyn. Our descendants will not be satisfied if the scientists of the next generation do not enable them with greatest facility and economy to witness by perfected kinematographs the weddings of any of their friends at the antipodes, the battles being fought on the other side of the world and the races of horses, yachts and boats in every land. Balloons will rise high above contending armies, and with automatic cameras will snapshot the whole scene, bringing down forthwith to the respective generals perfect pictures of their enemies' forces."

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### HOW STAINED GLASS WINDOWS ARE MADE

THE twentieth century American stained glass maker follows without important variations the simple methods of the French monks of eight centuries ago," says a writer in the Booklovers' Magazine. "The first requisite is the design. The artist makes a small water-color sketch to show the general design and color scheme, accompanying it with detailed studies. From this two large drawings or 'cartoons' are made, the exact size of the desired window. One cartoon shows where the 'leads' will be placed—the thin strips of lead, hollowed on both sides and looking in a transverse section like the letter H, which form the framework to bind the pieces of glass together. Another drawing gives the size and shape of each piece of glass. This cartoon is cut into its component pieces by a pair (or triplet) of three-bladed scissors, which leave between their parallel blades a space sufficient for the leads. These cut-out patterns are put together again on a large glass easel, to which they are attached by wax, and the spaces between are blacked in, to give the effect of the leads.

"The easel is then placed against a window where the light can stream through it. The artist or his substitute replaces each paper pattern on the easel by a piece of glass of exactly the same size, cut from a sheet of glass of color called for by the color sketch. The sketch is not followed slavishly; experiment with the actual glass will suggest improvements. To a greater or less extent this stained glass is supplemented by painted glass, on which the colors are fired as in china painting. When all the pieces have been cut, they are transferred to the 'leading' drawing; the flexible leads are twisted into shape and soldered at the points, and a special cement applied to make the whole water-tight. The window is now complete, ready to be put in position, where it is made secure by copper wires fastened to the transverse bars of iron."

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### SIGNALS UNDER THE SEA

AN invention which is arousing much interest and which is being developed rapidly is what is known as the "sub-aqueous telephone."

Its principal elements are delicate transmitters or microphones, attached to the hull of the vessel below the water line. These sensitive instruments intercept the sound waves as they traverse through the water and transmit them by regular telephone wires to the captain, who with the receivers at his ears is listening in the wheel house. To aid the sub-aqueous telephone it has been proposed to equip lightships, lighthouses, bell buoys, etc., with bells that will ring in the water and thus cause the sound waves to travel at greater distance and with greater accuracy.

This system, it is believed, will enable warships to carry on telephonic signal communications with each other while at sea, no matter how dark and stormy the conditions may be above water. In averting collisions at sea it is expected to perform one of its most valued services.

The transmitters or microphones which intercept the sound waves, are each placed inside a waterproof cup which is secured to the hull of the vessel at a considerable distance below the water line. The vessel is equipped with a number of these microphones, one of which, for instance, will be located on each side of the bow, one on each side amidship, and one on each side at the stern.

The American Telephone Journal says: It is well known that sound waves can be transmitted through the water with as great facility as through the air, and with a considerably greater speed on account of the superior density of the transmission fluid. So if any sound waves pass through the water they will impinge upon the transmitter and can be heard in any receiver which is connected thereto. The principle of the invention really lies in the multiplicity of transmitters which are located along the hull of the vessel and the arranging of these transmitters so that they may be successively cut into circuit with the receivers. The circuit is so arranged that two transmitters are associated with a pair of receivers which may by means of a switch be instantly changed from one transmitter to the other. If the vessel is approaching a coast where a lighthouse is equipped with a fog bell or a siren the sound waves produced by these will again be reproduced by similar waves in the water. These sub-aqueous sound waves will act upon and affect the diaphragms of the transmitters or microphones which will produce a current of varying intensity, which will in turn cause the receiver in the circuit to make a sound. The pilot switches his receiver successively from one transmitter to the other from bow to stern, along both sides of the vessel, and it is easy to understand that the sound produced in the receiver will be greater when it is connected to the transmitter that is nearest to the direction in which the sound is coming and it is easy for the pilot to tell whether he is approaching a sound or receding from it, or whether it is on the port or stern side of the vessel. The vibrations can be initiated by a bell that is hung over from the side of the lightship or suspended in the water, at the end of a cable, from a lighthouse, or from a bell buoy operated by the waves. The bells can be struck with a hammer exactly like a bell in the air, only with considerably more force. These vibrations are taken up by the receiver on board the vessel and transmitted electrically exactly the same as through the telephone. The ear pieces are identical with those used in the telephone. The invention does not require the captain of the vessel to use delicate telephone apparatus and tables of logarithms, but simply to use two telephone ear pieces with which to listen to the bell. In other words, the faculties that are cultivated in him are the very ones that he most uses.

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Solar heat is being utilized for heating water for various household purposes. The apparatus for this purpose is absurdly simple, merely a sectional boiler of thin, blackened copper, exposed on the sunny side of the roof under a glass cover very like a hot-house frame, and suitably piped for supply and demand. An hour's exposure to full sunlight raises the water to a temperature from thirty degrees to sixty degrees Fahrenheit above that of the air, and as the heaters actually in use contain from forty to one hundred and twenty gallons, according to size, there is an ample supply of hot water through the hours of daylight. Solar water heaters of this kind have been installed on the roofs of many houses in southern districts. They work admirably, and even in less favorable places have been found useful for the purpose desired.

# COMMERCE AND INDUSTRY

## A WIRELESS TROLLEY

A REVOLUTION in railway transportation will be achieved, it is believed, by the invention of a wireless trolley. In the new system, says a writer in the New York Herald, the overhead or underground wires are done away with, as well as the third rail. The danger element is completely eliminated, it has been demonstrated, in doing away with the wires. The cost of installation and maintenance is enormously reduced. All that may be done with the ordinary trolley system as regards high speed and economy of transportation, it has apparently been shown, may be done better by wireless trolley.

New systems of transportation are common in theory, but the new wireless method is an accomplished fact. An experimental trolley line operated by the wireless system has been in actual operation for several months. The system traversed by the cars has been installed on the Chelsea Division of the Pennsylvania Railroad at Atlantic City, N. J. Wireless trolley lines are soon to be introduced on several lines in different parts of the country. The system is the invention of L. W. Pullen, of Camden, N. J.

The tracks of the wireless system are entirely clear of all poles or visible wires. Until one is in the secret of the method the tracks would give no clew as to the manner of transmitting power. There is no slot with its underground wires, no third rail. Nor are the cars supplied with storage batteries. At intervals of sixteen feet or more extending midway between the tracks is a series of little metal buttons, and that is all. The buttons rise only an inch above the surface of the street or road. One must look close to see them.

The system itself, however, is extremely simple. These inconspicuous little buttons are perfectly dead, electrically, until the car touches them. A powerful magnet carried beneath the car serves, however, to close the circuit beneath the metal buttons, whereupon the buttons become suddenly alive, giving what energy is needed to the car. The current thus picked up returns by the regular trolley rails, which thus complete the circuit. The instant the car has passed and the magnet has ceased to influence the metal button armature below the points of contact, the little metal button is left dead once more.

The metal buttons are in reality the tops of airtight boxes sunk flush with the level of the street. The box itself is about ten inches square and two inches deep. Their mechanism is extremely simple, and therefore unlikely to get out of order. These boxes placed at intervals of sixteen feet are in turn connected by an underground conduit, which brings them all into the same circuit. Exhaustive tests have been made by the Wireless Railway Company to prove the absolute scientific safety of the wireless system.

Since the wireless system does away with the overhead wires, the danger of their breaking in bad weather is of course abolished. In case of a fire along the trolley line there are no lines to interfere or lend added danger to the situation. Again, in the event of an accident, which occasionally happens on the best regulated trolley lines, as in the best families, there is no danger of a short circuited current. A fire from a cross wire is out of the question. In the fatal accident on the underground road in Paris, it will be remembered that the loss of life was due to the wreckage of the trains catching fire from the third rail. It is impossible to receive a shock of any kind on the wireless trolley system.

It is the important economy in installing such a system, however, that will probably make the strongest appeal to the railroad management of the thousands of miles of trolley lines throughout the country. The cost of the new system is also somewhat less than the third rail system.

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## THE NEW FORESTRY

FIFTY-THREE national forest reserves, with the enormous area of 62,354,665 acres, represent the remarkable progress of the new science of conserving one of the greatest elements of our national wealth, says a writer in the New York Tribune. The directing force behind this great development of the country's economic life rests chiefly in a young man who, five years ago, at the age of thirty-three, became Forester of the United States, and at this rate, if Gifford Pinchot is permitted to devote himself a few years longer to the work he has in hand, its universally beneficent influence can scarcely be lost for the next thousand years.

Mr. Pinchot was deliberately educated for the career in which he is now engaged. A native of Connecticut, he was graduated from Yale in 1889, and then studied forestry in France, Germany, Switzerland and Austria. He began his first systematic forest work in Biltmore, N. C., in January, 1892, on the estate of George W. Vanderbilt. He also served as a member of the National Forest Commission which drew the boundaries of the Cleveland forest reserves. In the South and the Adirondack region of New York his plans for scientific lumbering and reforestation have been generally accepted by those engaged in the industry.

It is in the great mountain regions of the West, however, that Mr. Pinchot finds his widest and most important field. Here he has also met more or less opposition to his aggressive policy, because of the eagerness of this section to develop its resources to the fullest extent. The most serious apprehension, perhaps, on the part of western people is the notion that the setting apart of reserves and the scientific methods of forestry to follow would end or largely curtail the lumbering industry on mountain watersheds. To this objection the "Forester" made the following response:

"I am not a preserver of trees. I am a cutter down of trees. It is the essence of forestry to have trees harvested when they are ripe, and followed by successive crops. The human race is not destroyed because the individual dies. Every individual must die, but the race lives on. So every tree must die, but the forest will be extended and multiplied. It by no means follows that the face of the land shall be denuded so that the character of the watershed shall be altered, with the resulting of injury to streams and to agricultural lands dependent upon them."

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## THE SIBERIAN RAILWAY

THE transcontinental railway across Siberia, which connects Moscow with Port Arthur and on which all Russian army supplies will be carried during the war with Japan, is 5,100 miles long. For hundreds of miles the railway passes over level stretches of deep, black soil, absolutely stoneless, and with a surface, except in summer and autumn, of mud or mud and snow. The flatness of the country encouraged rather flimsy methods of construction, and the rails are light. The engines are wood burners and carry a crib piled with firewood as high as the smokestack. The bridges which cross the central Asian waterways are no flimsy structures, but well calculated for the heavy traffic they will have to bear. Over the broad yellow flood of the Volga at Samara is a great iron bridge called the "Alexander," with thirteen spans each of 350 feet, nearly a mile long between its abutments.

XUM

# RELIGION AND REFORM

## A NEW CHAIR FOR THEOLOGICAL SEMINARIES

THE Rev. Dr. H. O. Rowlan's, a prominent pastor in Davenport, Ia., urges the establishment of a Chair of Practical Ministry in every theological seminary. Concerning this he writes in The Standard (Chicago) the following outline of work for such a chair:

"In this age of educational advancement and improvement when new lines of progress are set forth for the guidance of students, it will not be an innovation to suggest new studies in our theological schools, at least new emphasis on some of the present studies. I suggest a Chair of Practical Ministry, for the training of ministerial students in certain ways which have been overlooked or slighted.

"With this chair the seminary course will include vocal and instrumental music as studies for the future ministers. Much could be said for this study on account of the aesthetic culture it affords; but I plead for it as a necessity in the clerical equipment and a vital condition of an effective ministry. There are certainly wise and successful ministers who have no musical ability; but that is not a conclusive argument against my proposition. The pastor who has abilities to sing and play, and to instruct others to do so, greatly multiplies his power for good in his work. It will help in arranging and training the choir, in the selection of proper music for worship, in conducting prayer services, in pastoral visitations, in the work of the Sabbath School. There is hardly a nook in the minister's public life but what this accomplishment will greatly add to his efficiency. But in the usual preparation for the ministry this accomplishment is considered largely ornamental and its cultivation optional, and the minister is greatly handicapped in his efficiency.

"The seminary course should consider as one of its studies the science of church architecture. I maintain that the theological graduate ought to have some training in the science of constructing a practical, common-sense, convenient and serviceable house of worship.

"Again, this new chair for which I plead will place the emphasis on modern methods and missions rather than on the ancient and historical, on living questions rather than fossils.

"This new chair will give attention to religious and experimental theology as distinguished from a bookish, intellectual theology. The first is practical, peaceable, constructive, and leads to the deep things of God; the latter is controversial, polemical, destructive, and of little value compared to the other. The professor of the former is spiritual, devout and inspiring; he of the second may be only a salaried pedagog as elusive as a fleeing cuttlefish, when indeed he is not bristling as a porcupine in the presence of practical evangelical truth.

"The great thought-movements of the age from a Christian view-point are not vague and nebulous; not German theories of philosophy, nor continental theological speculations, nor impractical and impossible socialistic notions; but they are the great missionary movements in foreign and heathen lands, the doubtful, hot and raging conflict between the churches in America on the one side and the organized heathenism of all shapes and colors on the other. The city problem with its fermenting immoralities, the Negro conundrum, the saloon epidemic, the labor and capital question, the new demands of the age on the church and ministry, the evangelization at home and missionizing abroad; our new island possessions, which like a moaning, soreful, hungry Lazarus are on our doorstep, the all-the-week open church, how to reach the foreignized, irreligious farm houses, how to conduct revivals, how to generate and propel evangelistic movements, how to train converts—these and such like are problems for the consideration of the new chair of practical ministry. Had I money I would endow it. But—what seminary would entertain such a proposition if made!"

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## THE BIBLE IN THREE HUNDRED AND SEVENTY LANGUAGES

A PARAGRAPH in the St. James' Gazette of London shows that there are over 5,000 distinct languages in the world, with a vast number of dialects. The writer says:

"It is estimated that over 5,000 distinct languages are spoken among men. A calculating prodigy would be wanted to compute with exactness how many separate dialects are in use. Sixty years ago it was reckoned that sixty different vocabularies were to be found in Brazil, but the actual number must be far greater, for in much smaller Mexico the Nahua language has broken up into 700 dialects. There are hundreds in Borneo. In Australia there is no classifying the complexities. "Generally," says a writer in Knowledge, "the number of dialects is in inverse proportion to the intellectual culture of the population. Assume that only fifty dialects on an average belong to every language, and we have the colossal total of a quarter of a million linguistic varieties. In this babel the battle is incessant. All manner of inflections—numbers and tenses, cases and moods—strive with one another for predominance. Modes of utterance dictated by differently modified laryngeal organs struggle for superiority. Some succumb, others survive."

What has been done during the last century to meet the great need which this fact points out is shown by the "Table of Languages," pp. 464-480, of the last Report of the British and Foreign Bible Society.

Grand total of languages—

| | |
|---|---|
| Bibles | 97 |
| New Testaments | 93 |
| Portions | 180 |
| Total | 370 |

## THE FREE PEW SYSTEM

THE rented pew is becoming an anomaly in the Episcopal Church, says the Boston Advertiser. At least twenty-five years ago the rented pew was not only one of the main sources of revenue to a church, but was also one of the cherished institutions in drawing the line between the orthodox churchman seated and the dissenter unseated. The clergyman or layman who advocated free seats was regarded with suspicion and in the light of an iconoclast. This applied not only to the old Episcopal churches, but to the Congregational, Unitarian and other denominations as well.

It is hard to say at this date where the free pew movement began, but it has left its impress throughout the country. In the city of Boston, for instance, it is only the extremely old Episcopal churches, whose history is a part of the history of Boston, which retain the rented pew, and in these few exceptions nearly as many free seats are provided in the galleries as there are rented seats. The general idea of the time is that the preaching of the Gospel should be absolutely without restriction to all who may listen. The decline in church attendance, so that churches are in that position where they are glad to get congregations at all, has been one of the main factors in the change. But the change has come even in very prosperous churches.

# EDVCATIONAL

## ADVANTAGE OF A COLLEGE EDUCATION

PRESIDENT John H. Finley of the College of the City of New York has been gathering some statistics which show the great advantage to a young man of a college education. In a symposium in the New York Herald he said:

"The college man needs no statistics to strengthen his gratitude to the college or his faith in it. He may question the value of certain courses, but not of the total curriculum. One seldom hears a college man regret having taken a college course. Often he regrets not having taken full advantage of its opportunities.

"Though statistics do not affect the graduate's loyalty and faith, they do have a certain value in their general advice, that is, assuming their advice is sound. I have been furnished recently some statistics of the office of the State Board of Regents, which show what the chances of success are for the college and non-college man.

"The first statistic is one which is derived from an examination of the 15,000 names which appear in a cyclopedia of American biography. One-third of these names are of college bred men. And the inference which a mathematical calculation allows us to draw is that one in forty of the college bred 'makes his mark' in the world as truly as one in 10,000 of the population without a college training. In other words, the college man has 250 chances to one for the non-college man of becoming distinguished in some way.

"The statistics of the living notable men and women are quite as striking and even more favorable to the college bred. In a standard biographic dictionary of notable living men and women in the United States in 1901-1902 there are 11,551 names. Of these notables 5,775, or 50 per cent., are collegiates, and 4,810, or 42 per cent., are college graduates. These figures are even more remarkable as showing how much a college education adds to chances for success in life.

"As to the value of a college education in business, records show that about one in six of the students of New York colleges who have distinguished themselves are engaged in industrial or commercial pursuits. This means that the college man in industrial or commercial pursuits alone has forty chances to one for the non-college man of becoming noteworthy in any capacity."

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### AN EXPENSIVE SCHOOL FAD

A BROADSIDE at fads in the public school course of study has been fired by Controller Grout of New York City in the report of an expert in elementary pedagogics he employed to investigate the sewing classes in the schools. This report discloses, among other facts, that it costs New York city $125,000 a year to conduct sewing classes. While the teaching of sewing is not condemned altogether, some radical changes in the system of this instruction are recommended.

The course of study provides for five years' work in plain sewing and three years' instruction in dressmaking and applied design. Many special teachers are employed, the salary roll amounting to $66,500 annually, while material and other expenses entail an additional cost of $58,000. There is no doubt that sewing is a practical art, and has a definite educational value, but the wisdom of teaching dressmaking in the public schools is at least a debatable question, as it is doubtful that the elementary public school is the place to train specialists. Mr. Grout's report recommends that the teaching of applied design and dressmaking be dropped and the expense of the sewing instruction be cut down in other quarters. The ridiculous requirement that large boys be taught how to ply the needle is also condemned on the ground that their time could be better spent at other things.

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A department of domestic science for young women has been authorized in the University of Wisconsin by an appropriation of $15,000. Rooms have been equipped as kitchen and laboratory, and the turning out of domestic experts will begin with the next commencement, in June. The appropriation for this department was made by the legislature after the club women of the state had appeared and urged the measure. The course will include scientific and practical study and preparation of foods, house sanitation, decoration and management and domestic physiology.

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# POLITICAL TOPICS OF OUR DAY

## A NOTABLE EVENT IN OUR HISTORY

ONE of the most notable political events of the month was the ratification of the Panama canal treaty by the decisive vote of 66 to 14 in the United States Senate on Feb. 23. There were no surprises in the voting. Every Republican senator present voted for the treaty. The Democrats exactly divided their voting strength—fourteen for the treaty and fourteen against it.

Senators say there were just two objects in the chamber at the final moment which attracted their attention and roused their sentiment. One was the white, bowed, grim head of Senator Morgan, defeated and defeated irrevocably at last, after a life of struggle. The other was the chair which had been formerly occupied by Senator Hanna, the man whose leadership, whose courage, whose genius in handling any question relating to the business affairs of the nation had made this proud and pregnant moment possible.

Discussing the event, Walter Wellman writes: "The great canal fight is finally at an end and 'the dream of centuries' at last is to be realized. One of the greatest episodes in the history of the American people has been this canal project. For nearly a century it has been discussed and debated and investigated by our public men and engineers. Interoceanic canal papers fill huge books in the archives of the State Department. Engineering investigations, surveys and reports without number are to be found in the libraries of the government departments. Go through the official records of the debates of Congress, and canal discussions will be found occupying almost as much space as any other single subject. The literature of the American canal route is a big library in itself.

"Until a little more than two years ago hardly anyone in America dreamed that this country would ever devote its energies to the construction of a canal by any other than the Nicaraguan route. That was regarded as the American route, and no one gave the least consideration to the possibility of going to Panama. The man who really started the movement for consideration of the Panama route in this country was none other than Phillippe Bunau-Varilla, the present minister of Panama. Among those visited by Mr. Bunau-Varilla was the late Senator Hanna. Mr. Hanna became convinced, and at once started his campaign. He did not live to see the end."

## TO CONSIDER INTERNATIONAL ARBITRATION

SENATORS Frye, Fairbanks and Morgan were appointed on February 24 as a special sub-committee on foreign relations to consider the question of international arbitration. The senate committee appears to be in favor of international arbitration as a general principle, but as yet no one has been able to formulate a scheme to carry this general principle into practical operation.

There are several bodies, having headquarters in London, Paris, Berlin, Vienna, Rome and New York, which are all seeking to promote public sentiment in the direction of settlement of all international disputes by means of some such court of arbitration as has already been established at The Hague.

The appointment of this new subcommittee is not likely to mean the immediate negotiation of an arbitration treaty with any country, but it is said to be an important and possibly a historical step in that direction.

## THE VENEZUELA DECISION

THE Hague Arbitration Tribunal has decided that Great Britain, Germany and Italy are entitled to a preference of 30 per cent. of the customs duties at La Guayra and Puerto Cabello. The other creditor nations of Venezuela which did not participate in the blockade resisted the claim of Great Britain, Germany and Italy for preferential treatment, and the issue was therefore submitted to The Hague Tribunal.

The Tribunal waived the issue as to whether the blockaders had exhausted all peaceful means to secure payment, and did not pass upon "the character of the warlike operations." It certified that Venezuela since 1901 had declined arbitration proposed by Germany and Great Britain, and that the blockade was raised before they had received payment in full. The finding seems to encourage the collection of national claims by force, in that the blockading creditor nation loses no advantage, but becomes a preferred creditor if it agrees to arbitrate.

# MEDICAL PROBLEMS OF OUR DAY

## FACTS CONCERNING CANCER

A WRITER, under the designation of "X," but one who is evidently behind the scenes in modern scientific work, has an interesting article on the "Mystery of Cancer" in the Pall Mall Magazine of London:

"In every twelve women who die after the age of forty-five there is one who dies of cancer. In every twenty-one men who die after the same age there is also one who dies of cancer. It is not, as many people imagine, a rare disease, stabbing every now and then at one woman out of a thousand.

"For the present, cancer research has only one prescription for the unfortunates who fall victims to this evil. That prescription is the surgeon. Taken in time, cancer can be removed from the body. To delay is not only perilous, it is absolutely fatal. And why should there be any longer a fear of the knife? Surgery is now brought to so absolute a pitch of perfection that a localized cancer in an early stage can be removed with little more risk than a decayed tooth. If people would only realize this truth, and disabuse their minds of the old superstition of the knife, many cases of cancer might be cured."

---

## IMPROVED TREATMENT FOR INSANE

DR. MARY A. SPINK, member of the Board of State Charities for Indiana, writing to The Christian Work and Evangelist, calls attention to some of the mistakes which have been made in the treatment of the insane and suggests new methods as follows:

"For sixteen years I have constantly lived with, observed and treated the insane, both in State institutions and private hospitals. It is my opinion that we are on the verge of a great reform looking to a better knowledge of causation and of treatment. While I think the kind of hospitals we have been constructing in America are examples of financial error and medical mistakes, they are not useless, but may be converted into a combination of asylum and factory to be used solely by the quiet, chronic, and presumably incurable insane. A department which need not be very large might be set aside for the active treatment of certain classes.

"Early treatment is at all times the first and most important move for the patient. The second requisite is that the patients be removed from their home surroundings to a place where that constant observation may be given that is required to properly study and treat the case. It is true that with some few patients the emotional form of psychical aberration may pass away at their homes, but the risk of graver forms of disease is too great to make the experiment worth while.

"Well equipped cottage hospitals, or observation pavilions with rooms for fifteen to twenty patients, should be constructed near each State institution, and in these all acute cases should be received and kept for from thirty to ninety days. Here it is that the case should have the most careful and scientific attention of the most skilled physician, the most faithful and well trained corps of nurses, the best cuisine, and all of the appliances known to be of use in the treatment of such persons."

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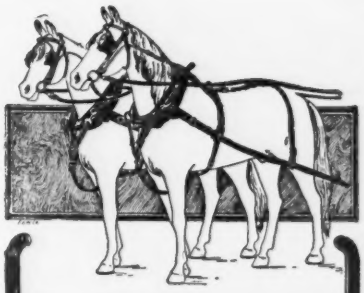
## NATIONAL DEATH RATE DECREASING

HOW marked has been the advance in medicine during the last ten years, is shown by the report of the Vital Statistics Department of the Census Bureau, and how beneficial the effect of the introduction of antitoxin is shown in a most telling way, by the decrease in the death rate of fifty per cent. In croup the death rate has been reduced from 27.06 to 9.8 per 100,000. The reductions in other diseases are as follows: Typhoid fever, from 46 to 33; brain diseases from 30 to 18; bronchitis, from 74 to 48; cholera infantum, from 79 to 47; malarial fever, from 19 to 8; whooping cough, from 15 to 12; convulsions, from 56 to 33; and scarlet fever, from 13 to 11. On the other hand, the death rate from some ailments has increased. The death rate of cancer in 1890 was 47. In 1900 it was 60. The rate for apoplexy has increased from 49 to 66; while the increase for diabetes and kidney diseases is respectively from 5 to 9 and from 59 to 83. No doubt these augmented rates are due to the conditions of life, which are not within the power of medical science to control. From the figures quoted it certainly follows that the general health of the people of our country is improving, and nothing shows this more clearly than the fact that the deaths from old age in 1890 was but 44 per 100,000, while in 1900 they were 54.

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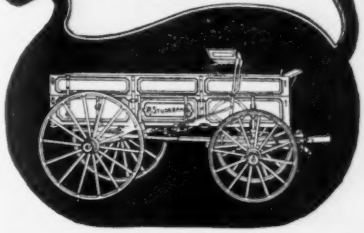

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# BOOKS OF OUR DAY

## A BIG LIBRARY OF LITERATURE

M'CLURE-PHILLIPS have just completed arrangements for bringing out what will probably be the most complete library of the world's literature ever published. The plans include over a thousand volumes and the titles will cover not only the English and American classics but all the vital literature of the world, both ancient and modern. The idea has been maturing for over three years, but the project has not until recently taken definite shape, for lack of a suitable editor. The resignation of George Edward Woodberry from Columbia University has left him free to take editorial direction of the enterprise.

The series has been called provisionally "McClure's Universal Library." Its purpose is to put into the hands of readers reprints of the world's best literature that shall be inexpensive and yet beautiful. The books will be simple, dignified and in every point of manufacture excellent. The text will be printed in all cases complete, with only such notes as will be necessary to explain really obscure points and passages. Every volume will contain a brief critical and biographical introduction.

## "AMERICA'S BOOK PALACE"

MR. SPOFFORD, who has been for nearly forty-three years identified with the Library of Congress, and who was for thirty-three years of that time the tireless controlling spirit directing its growth and destiny, was interviewed by the New York Tribune recently concerning his work, in which he gave some interesting information.

"Recalling the well-nigh indescribable congestion that existed in the library space in the Capitol before the new building was ready for occupancy, I may say that when the time came for removal it was like quitting purgatory for paradise. Since I was commissioned to service in the library by Presdient Lincoln in 1861, the number of volumes has grown from 70,000 to 1,200,000, and ours is now the third library in the world. The two that take precedence are the Bibliotheque Nationale, in Paris, with 2,000,000 volumes, and the library of the British Museum, of London, with 2,000,000 volumes.

"Having been relieved of the arduous labors and responsibilities of reorganization and executive control at the time of the removal to the new building, I now devote my time to the enrichment of the library. My present relation of chief assistant to the librarian is probably an emeritus position, but is most agreeable. I am constantly scanning the catalogues of the book auction houses, not only of New York, Boston, Philadelphia and Chicago, but of London and the cities of the continent, and indicating for purchase the books that are not already on the library shelves, and search demonstrates that eight times out of ten I am right in my conviction that we are in need of the book. Practically every book in that great collection has passed under my eye by title at least, and with an extremely large number of them I have had actual physical contact.

"More and more I am impressed with the utility of our beautiful building, which I call the 'Book Palace of America.' The purchases now being made are most important under the classifications of Americana, political and legal science and history."

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The Reader Magazine of New York has been purchased by the Bobbs-Merrill Company of Indianapolis. It is the first general magazine that has ever been published in Indiana.

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Harper Bros. have just received in a single week three different orders for one thousand volumes each of "Ben-Hur," irrespective of the smaller orders, which aggregate in the thousands. It was first published on November 12, 1880.

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Kate Douglas Wiggin, the author of "Rebecca of Sunnybrook Farm," which is now becoming so popular, began writing in the early eighties. One of her first books, "The Birds' Christmas Carol," published in 1886, has enjoyed a continuous popularity, and over 322,000 copies have been sold. "Timothy's Quest," "The Story of Patsy," and the "Penelope" books have also been great favorites. Over 800,000 copies of Mrs. Wiggin's various stories have already been sold. In connection with her sister, Miss Smith, Mrs. Wiggin has published "The Republic of Childhood," in three volumes, entitled "Froebel's Gifts," "Froebel's Occupations," and "Kindergarten Principles and Practice." Mrs. Wiggin spends her winters in New York City, and generally makes a visit to England every spring.

# NOTABLE UTTERANCES

## MR. ROOT'S DEFENSE OF PANAMA POLICY

PROBABLY the most notable defense of President Roosevelt's policy in regard to Panama, in which the ethics of the controversy were discussed, was made by ex-Secretary Root before the Union League Club in Chicago on the afternoon of Washington's birthday. He said:

"By the rules of right and justice universally recognized among men and which are the law of nations, the sovereignty of Colombia over the isthmus of Panama was qualified and limited by the right of the other civilized nations of the earth to have the canal constructed across the isthmus and to have it maintained for their free and unobstructed passage.

"The rejection of the canal treaty by the Bogota Congress was the final and overwhelming injury to the interests of Panama; the conclusive evidence of indifference to her welfare and disregard of her wishes; and it also created the opportunity for success in her persistent purpose to regain civil liberty; for it was plain that under the strained relations created by that rejection the United States naturally would not exercise her authority again upon the isthmus as she had exercised it before to aid the troops of Colombia.

"The people of Panama were the real owners of the canal route; it was because their fathers dwelt in the land, because they won their independence from Spain, because they organized a civil society there, that it was not to be treated as one of the waste places of the earth. They owned that part of the earth's surface just as much as the state of New York owns the Erie canal. When the sovereign state of Panama confederated itself with the other states of Colombia under the constitution of 1863, it did not part with its title or its substantial rights, but constituted the federal government its trustee for the representation of its rights in all foreign relations, and imposed upon that government the duty of protecting them. The trustee was faithless to its trust; it repudiated its obligations without the consent of the true owner; it seized by the strong hand of military power the rights which it was bound to protect; Colombia itself broke the bonds of union and destroyed the compact upon which alone depended its right to represent the owner of the soil. The question for the United States was, shall we take this treaty from the true owner, or shall we take it from the faithless trustee, and for that purpose for the third time put back the yoke of foreign domination upon the neck of Panama, by the request of that government which has tried to play toward us the part of the highwayman?

"By all the principles of justice among men and among nations that we have learned from our fathers, and all peoples and all governments should maintain, the revolutionists in Panama were right, the people of Panama were entitled to be free again, the isthmus was theirs and they were entitled to govern it; and it would have been a shameful thing for the government of the United States to return them again to servitude.

"The warrant for the execution of that policy is the right of self-protection. Some things done by our officers might not have been permissible in the territory of a country of strong and orderly government possessing and exercising the power to prevent lawless violence and to protect the lives and property of citizens and foreigners alike; but action of this character is, according to the universal rule obtaining among civilized nations, not only permissible, but a duty of the highest obligation in countries whose feeble governments exercise imperfect control in their own territory and fail to perform the duties of sovereignty for the protection of life and property.

"Upon the firm foundation of that righteous action, with the willing authority of the lawful owners of the soil, we will dig the canal, not for selfish reasons, not for greed of gain, but for the world's commerce, benefiting Colombia most of all. We shall not get back the money we spend upon the canal any more than we shall get back the money we have expended to make Cuba a free and independent republic, or the money we have expended to set the people of the Philippines on the path of ordered liberty and competency for self-government. But we shall promote our commerce, we shall render inestimable service to mankind, and we shall grow in greatness and honor, in the strength that comes from difficult tasks accomplished and from the exercise of the power that strives in the nature of a great constructive people."

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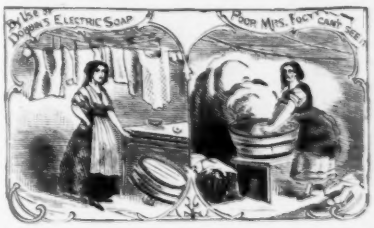


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# QUAINT AND CURIOUS

## A TEA PARTY IN JAPAN

ONE of the quaintest customs of Japan is the tea party, where tea is drunk all day long. According to one of their own native physicians, there is "no plant yet known to the world whose infusion or decoction so gently refreshes the drooping animal spirits and recreates the mind."

Tea-parties may be said to have been first brought into vogue by the Shogun Yosi Messa about the middle of the fifteenth century with the laudable intention of imparting a more peaceful tone to society. On these particular occasions the number of guests was not supposed to exceed five, which is the Celestial number, while the etiquette attendant on these mild festivities was of the most rigid description. Sometimes the parties took place on the veranda, the guests being enclosed by screens; if indoors, a portrait of Darma, the patron saint and discoverer of tea occupied the place of honor. In any case, it was imperative that the servants should be dismissed and the master of the house himself attend upon the company, who, in their turn, were expected to leave their swords in the umbrella stand as a guarantee of the peacefulness and purity of their intentions.

As soon as the number of guests was complete the host brought in the tea equipage, including charcoal for the stove (on which perfumes were flung), a kettle to boil the water, &c. The tea used, as was generally the case with the finer sorts, was ground to an almost impalpable powder, and might be served either clear, or thick, like turtle soup. A teaspoonful would be put into a bowl, boiling water poured on, and the infusion whipped with a split bamboo until it creamed. Here it may be mentioned that the finest tea of all, that, for instance, which was reserved for the use of the Emperor, was calculated to be worth somewhere about twelve or thirteen shillings a cup, of English money. Those employed in gathering the leaves had to wear gloves, abstain from eating fish or other strong-smelling food for two or three weeks previously, and take, at least, two warm baths a day, which helped to keep up the price.

Perfect equality was supposed to prevail at these same tea-parties, and one bowl appears to have served the entire company, who drank in turn and passed it round until it came back empty to the tea-maker, who then concocted another brew.

## THE USE OF THE DIVINING ROD

AT Renfrew, England, some time back a demonstration was given of the art of "water-divining," says a writer in Chamber's Journal. The operator claimed that he has never yet failed to find subterranean water by means of the divining-rod. Two places were marked where the curling upwards of the rod indicated that there was running water beneath, and we presume that borings will be made to test the correctness of the diagnosis.

Professor W. F. Barrett, who has devoted much attention to the alleged powers of the water-diviners, believes that in many cases the "dowsers," as these diviners are called, are guided by surface signs, imperceptible to the ordinary observer, but known to the experienced eye. But he admits that there have been several successful cases of water-finding where this explanation cannot apply. He fancies that the real cause of such success is due to something new to science; to a supernormal perceptive faculty possessed by certain individuals which causes an object sought for to excite an impression upon them when they approach it. The necessity for the divining-rod and its alleged movements he regards as absurd. He suggests, as a subject for investigation, that some modern method of detecting a change in the circulation of the blood, the result of emotional disturbance, might be tried on one of these "dowsers," as a substitute for the divining-rod.

## THE SALARY FOR A MARRIED MAN

ONE of the odd ideas which persist in bobbing up here and there, is the notion that a firm can fix the salary which a young man should attain before he marries. As a matter of fact it all depends on the people concerned. Some would feel cramped on $10,000.00 a year, while other couples would save money on $900.00 a year. The Corn Exchange National Bank of Chicago has fixed the limit at $1,000.00 to marry. The following notice was posted in a conspicuous place:

"Employees of this bank receiving a salary of less than $1,000 a year must not marry without first consulting the bank officials and obtaining their approval."

More than 200 men are employed by the Corn Exchange National bank. Of these 170 are on the clerical force. It is said that many of those receiving less than $1,000 a year are married.

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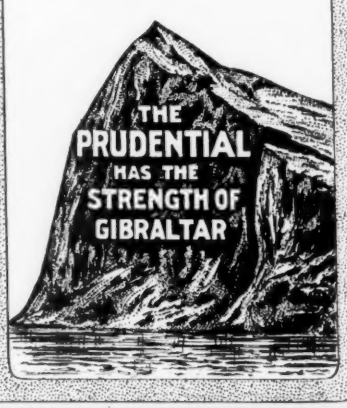
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